

# PROJECT SCOPE 1. PARKING DECKS

## D. Project Work Statement

### SECTION 1 INTRODUCTION

1.1 This document is a summary of anticipated specifications for the parking structures at the Phoenix Center site in Pontiac, Michigan. It is intended as a conceptual design document.

### SECTION 2 SITE CLEARING AND PREPARATION

- 2.1 County shall provide the following site conditions prior to NTP 3 – Full Construction:
- a) County to complete demolition down to the bottom of the existing slabs on grade, grade asphalt, and removal of all improvements connected to the parking structure (whether on the Deck Project Site Plan or otherwise), and removal of all materials and equipment from the Deck Project Site Plan.
  - b) County to complete separation and demolition of the lobby/vestibule area and “link” structures on adjacent towers located at 51111 Woodward Ave and 31 E. Judson St.
  - c) County to confirm the Deck Project Site Plan land has been cleared and graded, including removal of all foundations, pile caps, and other materials to five feet (5') below the existing grade for the Deck Project Site Plan. If the proposed grade is different than existing grade, Developer is to identify the difference. Caissons nearest the Clinton River drain are not to be removed at any depth. Land balancing and staking is the responsibility of Developer.
  - d) Developer to confirm all underground utilities disconnected.
  - e) Construction fencing for the current Phoenix Center demolition will remain in place. Fencing that is needed beyond the existing fencing is the responsibility of Developer.
  - f) County to confirm backfill of voids created by foundation and SOG removal is completed; all backfill to be provided includes Class II sand and compacted to 95% dry density, after soil testing
  - g) County to provide all documentation, including site or land condition, reports and surveys, covering the Deck Project Site Plan to the Developer.
  - h) County will provide all environmental reports and other related information in their possession, and can only confirm reliance on available information.

### SECTION 3 STRUCTURAL

3.1 Structural System – Precast concrete frame including columns, shear walls, lite walls, and pre-stressed spandrels and beams supporting a precast pre-stressed, pre-topped, structural floor system with minimum 4-inch-thick by 12' wide double tee flange and field topping at washes.

3.1.1 Floor to Floor Dimensions: 11'-6" for all levels of both garages (except where indicated for retail component option, floor to floor shall be 17'-0").

3.1.2 The precast fabricator and erector shall be PCI Certified. The design of the precast shall meet ACI 318 and PCI MNL 120 design standards. The fabrication and quality control of the

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precast shall meet PCI MNL 117.

### 3.1.3 Cast-in-Place Concrete Quality for Exposed Concrete (not applicable to foundations):

- i) Maximum 0.40 water/cement ratio.
- j) Minimum 5,000 psi at 28 days.
- k) Air entrained concrete 6.5%.
- l) Calcium Nitrite Corrosion Inhibitor varies by location, 2 to 3 gal/cy.
- m) Admixtures to reduce long-term permeability, such as fly ash and ground granulated blast- furnace slag (GGBS).
- n) Aggregate (coarse and fine) that meets ASTM C33 5S requirements and confirmed not susceptible to alkali-silica reaction (ASR).

### 3.1.4 Precast Concrete Quality:

- a) Maximum 0.38 water/cement ratio.
- b) Minimum 5,000 psi at 28 days.
- c) Air entrained concrete 6.5%.
- d) Calcium Nitrite Corrosion Inhibitor 2 gal/cy for beams, tees, spandrels, and other horizontal members.
- e) Aggregate (coarse and fine) that meets ASTM C33 5S requirements and confirmed not susceptible to alkali-silica reaction (ASR).

### 3.1.5 Precast Connections - Stainless steel connectors; galvanized exposed plates.

### 3.1.6 Reinforcing Steel:

- a) Epoxy coated steel to be used for cast-in-place toppings.
- b) Epoxy coated steel to be used in precast flanges and for reinforcement that extends into the cast-in-place topping slab. Black (uncoated) steel is to be used in all other precast construction.
- c) Precast double tees, beams, and spandrel elements to be prestressed.

## 3.2 Geotechnical Requirements

3.2.1 Based on existing construction, caisson (drilled pier) deep foundations are anticipated. Belled caissons with 30,000 psf bearing capacity is assumed for column, shear wall, and lite-wall foundations. Ancillary wall and retaining structures assumed to be soil bearing (not on deep foundations).

3.2.2 Final foundation type and design will be in accordance with recommendations by the Geotechnical Engineer following geotechnical investigation.

3.2.3 Foundation drains (drain tiles) will be anticipated at the base of all retaining walls.

3.2.4 Slab-on-grade sub-base typically consists of 6" of compacted coarse aggregate or 12" compacted sand fill, to be confirmed or as directed by Geotechnical Engineer.

3.3 Slab-on-grade - A 5-inch thick concrete slab with 4.5 lbs / cyd of structural fiber admixture and no reinforcing steel. Provide a vapor barrier beneath slab on grade in enclosed,

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conditioned rooms; not required in parking and driving areas.

### 3.4 Metals –galvanized

#### 3.4.1 Guardrails and Handrails.

3.4.2 Pipe Guards – ¼” thick galvanized steel plate anchored to concrete walls and columns with anchors at vehicle bumper height. Install at and around all plumbing risers in the parking areas.

### 3.5 Stainless steel or galvanized fasteners

3.6 Snow Removal – Provide a snow gate at the roof level of the parking structure consisting of an opening in a non- load bearing spandrel, a galvanized chain link gate, and galvanized 4”x4” HSS plow guard framing. The final design, dimensions and location are to be determined in the Schematic Design phase for SECTIONS 3, 7, 8, 9, and 10

## SECTION 4 ARCHITECTURAL

4.1 Interior spaces (elevator lobbies and communication rooms) will be climate controlled.

4.2 Stairs – precast concrete stairs by same precast fabricator providing the precast concrete structure.

4.2.1 Provide two stairs in each parking structure located and sized as appropriate for means of egress.

4.2.2 Galvanized guardrails and handrails. Side mounting is preferred for durability.

4.2.3 Stairs are open to the parking structure on lower levels with concrete walls or galvanized steel bollard vehicle barriers.

4.2.4 Provide enclosed stair/elevator lobby at top level for weather protection.

4.3 Elevators – Provide two or three elevators in each parking structure.

4.3.1 Machine Room Less (MRL) with control room at upper level. Refer to Mechanical for additional information.

4.4 Fire Extinguishers - Code required for every 11,250-SF maximum of floor area and no more than 75-feet maximum spacing, distributed throughout the entire building.

4.4.2 Provide painted steel cabinets.

### 4.5 Exterior Finishes

#### 4.5.1 North Deck

- a) North façade – Standard architectural precast wall panels. Integral formliner texture or exposed aggregate finish to be specified during design phase.
- b) East façade – No screening or wall panels.
- c) South façade – Standard architectural precast wall panels. Integral formliner texture or exposed aggregate finish to be specified during design phase.
- d) West facade – Tensioned PES ventilated mesh panels. 50% open mesh. Class A fire rated. Solid color. Basis of Design: FlexFacades Stretch Panel screen Type 1A – PES Ventilated Mesh.
- e) Exterior site lighting integrated into façade to be specified during design phase.

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- f) Decorative LED linear lighting . Basis of Design: Lumenpulse Lumen Façade Max Continuous Horizontal.

### 4.5.2 South Deck

- a) North façade – Standard architectural precast wall panels. Integral formliner texture or exposed aggregate finish to be specified during design phase.
- b) East façade – Tensioned PES ventilated mesh panels. 50% open mesh. Class A fire rated. Solid color. Basis of Design: FlexFacades 3D Cladding Screens + Steel with Type 1A – PES Ventilating Mesh. Tube steel support framing.
- c) South façade – Standard architectural precast wall panels. Integral formliner texture or exposed aggregate finish to be specified during design phase.
- d) West façade – Tensioned PES ventilated mesh panels. 50% open mesh. Class A fire rated. Solid color. Basis of Design: FlexFacades Stretch Panel screen with Type 1A – PES Ventilating Mesh.
- e) Exterior site lighting integrated into façade to be specified during design phase.
- f) Decorative LED linear lighting . Basis of Design: Lumenpulse Lumen Façade Max Continuous Horizontal.

4.6 Doors - Hollow metal doors and frames, galvanized finish and pre-painted.

### 4.7 Glazing Systems

4.7.1 At stair towers, provide aluminum storefront where possible (for economy) or curtainwall systems (where greater height is warranted) or other screening system.

4.7.2 Maximize areas of glazing to allow natural light and open sight lines.

4.7.4 Provide wildlife friendly design, such as fritted glass, to minimize bird strikes.

### 4.8 Roofing

4.8.1 Polyisocyanurate tapered insulation, minimum 4” thick, with 60 mil EPDM roof membrane.

4.8.2 All rooftop equipment to be set on 12” roof curbs.

4.9 Snow melt system to be integrated into parking deck entrances

## SECTION 5 PARKING

5.1 Parking Access and Revenue Control Systems (PARCS) Equipment

5.1.2 Gate arms with at least two pavement loops in each lane.

5.1.3 Proximity card readers, intercom, and ticket dispenser in each entry lane.

5.1.4 Card reader with credit card only payment and intercom in each exit lane.

5.1.5 Pay-on-foot pay stations / kiosks, cash and credit, at pedestrian access points.

5.2 Wayfinding Signage, Vehicular and Pedestrian, aluminum backed signs, painted background with die-cut vinyl copy and symbols. Vinyl is a mix of reflective and non-reflective. Provide aluminum mounting frames for overhead signs. Other signs include room identification, structure identification, vehicle height restriction, etc.

5.3 Parking Space Striping – per striping plans. Yellow alkyd paint for typical striping with blue

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used for ADA spaces and green for EVCS. Centerlines and arrows will be yellow and have reflective beads embedded.

5.4 Specialty Parking Areas – if desired by County

5.5 Electric Vehicle Charging Stations (EVCS) – Refer to Electrical for additional information.

### SECTION 6 WATERPROOFING

6.1 Below Grade Waterproofing – cold fluid applied or sheet membrane

6.1.1 Below grade basement walls.

6.1.2 All sides of elevator pits.

6.2 Expansion Joints – Thermoplastic rubber sealing gland with elastomeric concrete nosing (e.g. WaboCrete Membrane Gen II Expansion Joint System, ME-series)

6.2.1 At slab-on-grade to superstructure transition.

6.2.2 Not anticipated at upper levels due to structure length being less than 300 feet.

6.3 Traffic Bearing Membrane (Deck Coating) - fluid applied, waterproof, traffic bearing elastomeric membrane; heavy duty system, solvent free (e.g. Auto-Gard FC by Neogard)

6.3.1 Over miscellaneous support rooms or other finished spaces.

6.4 Concrete Sealer – 100% silane sealer

6.4.1 Provide at all concrete slab horizontal surfaces and 24-inches up adjacent vertical surfaces.

6.5 Joint Sealants – multi-component polyurethane, non-sag

6.5.1 All field cast slab control joints –slab on grade and field topping to mirror joints between precast concrete double tees, approximately every 12-feet.

6.5.2 All horizontal and vertical joints between concrete, masonry, and other materials.

6.5.3 Fire rated joint sealant where installed in fire rated assemblies.

### SECTION 7 ELECTRICAL

7.1 Provide an electrical room on the highest level just under the roof level. All electrical components in parking structures shall be rated for wet conditions.

7.2 Normal Power – Project dependent, depending on site. Service size depends on total electrical load. Larger service size needed to accommodate additional EV charging Stations. Assume service size to be at least 1200A at 208/120V, 3-phase.

7.3 Emergency Power – Provided by an appropriately sized on-site diesel generator. Location of emergency power to be determined in Schematic Design phase. Location of emergency power will not affect parking counts.

7.4 Interior Lighting – Parking garage type LED fixtures, pendant mounted near the bottom of the double tee stems. Parking ramp light fixtures will generally be equipped to include occupancy, daylight sensors, and dimming.

7.5 Lighting on the Top Level – 16<sup>5</sup>-foot high pole mounted light fixtures with shielding placed

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along center axis.

7.6 Transition Lighting - At vehicular entry/exits, provide transition lighting zone (additional light fixtures) on reverse photocell control. Transition light fixtures to be illuminated during daylight hours to ease the visual contrast from exterior daylight to interior lighting conditions.

7.7 Exterior Lighting – As required based on exterior façade. Enhanced lighting at pedestrian access points.

7.8 Short Circuit Current, Coordination Study, and Arc Flash Hazard Analysis will be required for the power distribution system.

7.9 Exit signs shall include green lettering, weatherproof, vandal resistant type fixtures; 100-foot maximum or line-of sight spacing.

7.10 Fire Alarm System – Required at elevator lobbies and at top of elevator shaft, but not in parking areas. Addressable system as required by code. Devices will include pull stations, smoke detectors, and/or heat detectors. The fire alarm control panel will be in a location that will be within temperature rating requirements of the panel.

### SECTION 8 COMMUNICATION SYSTEM

8.1 Two-way Communication Systems.

8.1.1 Blue Light Phones – at every floor and stair main landings. Blue light phones may also be added to the promenade.

8.1.2 In each elevator cab.

8.1.3 Incorporation of County building safety systems.

### SECTION 9 ELECTRIC VEHICLE CHARGING STATIONS (EVCS)

9.1 Level 2 dual head chargers covering a minimum of 2% of parking spaces. Total number of EV charging stations currently and potential additional stations to be determined in Schematic Design phase.

9.2 Providing remote disconnects (emergency stop button) within line of sight of the charging stations and shunt trip breakers, which would allow power to be cut to the EVCS by first responders and manual operation of the breaker to restore power.

9.3 Initially EV charging stations at 2% of total parking spaces. This would require a 208/120V, 3phase, 225A panel to support the load. Load estimated to be 50.4kVA. A 208/120V, 3phase, 600A panel needed. Load estimated to be 172.8kVA.

9.4 PARCS Systems – coordinated with Parking, power and communication as appropriate for equipment.

### SECTION 10 SECURITY AND ACCESS CONTROL

10.1 Electronic access control (card readers) to rooms and spaces – coordinated with door hardware.

10.2 Security cameras – At all stair and elevator lobbies and main landings, vehicular entry/exits, and at pedestrian access points. Camera feed location to be determined in Schematic Design

### SECTION 11 MECHANICAL

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11.1 Mechanical ventilation for parking areas – Not included or required.

11.2 HVAC – Provide ventilation fans, unit heaters, and/or heat pumps as required in all enclosed rooms and spaces.

### SECTION 12 ELEVATORS (MRL)

12.1 Temperature and humidity control for elevator machine, assume heating and cooling for entire shaft. Also provide temperature and humidity control for the elevator control room that is located on an upper floor near the elevator shaft.

12.2 HVAC equipment needs depend on space usage and equipment present in spaces.

### SECTION 13 PLUMBING

13.1 Elevator pits – Sump pump discharging to sanitary with 50 gpm per elevator cab capacity. Install pump in 2 foot x 2 foot x 2 foot sump with galvanized bar grating at top. Provide one sump per pit.

13.2 Floor drains – Heavy duty, traffic rated, tractor grate (i.e. Watts FD-900 Parking Deck Drain)

13.2.1 Provide at all low points and for roughly 10,000-SF maximum of tributary floor area.

13.2.2 Drains that receive direct precipitation (roof level) drain directly to storm sewer.

13.2.3 Drains that are on covered levels typically drain to sanitary sewer, to be confirmed with local jurisdiction.

13.3 Piping – PVC piping for sanitary, storm, and vent piping; above and below grade.

13.4 Wash-down Piping and Hose Connections – domestic water service providing water to each level for structure washing and other clean-up activities. Galvanized piping.

13.4.1 System designed to be seasonally drained-down to prevent freezing.

13.4.2 2" riser with both 1-1/2" and 3/4" hose bib connections at each level.

13.4.3 Provide a booster pump, for a minimum flow rate of 25 gpm and minimum pressure of 35 psi at the top level hose bib.

### SECTION 14 FIRE PROTECTION

14.1 Fire Protection, General

14.1.1 Systems are located as required by code.

14.1.2 Fire Department Connection (FDC) coordinated with Civil for proximity to hydrant and appropriate mounting location (height and clear access area, visible location) and with Structural and Architectural for wall penetration. Provide backflow preventor and code-required signage identifying the FDC.

14.2 Manual, Dry Fire Standpipes – Galvanized steel pipe and fittings. Michigan Building Code 2021 requires Class I standpipes, which are located in each exit stair with a hose connection at each main floor landing.

14.3 Automatic Dry Sprinkler System – Not required or included at North Deck; Exempt per MBC 2021 / Michigan Resolution 408.30445. Potentially required at South Deck (dependent on distance from 51111 Woodward Ave building)

### SECTION 15 CIVIL

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- 15.1 Site Demolition, Grading, and Site Layout – site plan is project dependent.
- 15.2 Stormwater detention is required by local ordinance. Underground systems are possible and require coordination with structural foundations. Infiltration into surrounding soils is dependent on soil type; Geotechnical engineer will perform infiltration test(s) to determine design infiltration rate. Underground system budgeted, subject to change in Schematic Design phase
  - 15.2.1 Stormwater treatment unit required prior to underground detention system outlet to municipal storm sewer.
- 15.3 Sanitary
  - 15.3.1 Sand/oil separator treatment unit prior to outlet to municipal sanitary sewer.
- 15.4 Water
  - 15.4.1 Domestic – For wash-down plumbing system with hose connections; other fixtures if present (e.g. service sinks, restrooms).
  - 15.4.2 Provide separate leads for domestic water and fire protection system (if building sprinkler system is provided).
  - 15.4.3 Backflow preventer(s), and metering is required by municipality.
- 15.5 Site Fire Hydrant – Coordinate location with the FDC for the manual dry standpipe system. Provide the hydrant within 100-ft of the FDC, verify with Fire Code and local jurisdiction. Locate hydrants to minimize the chances of blocking road or vehicular drives with hose.
- 15.6 Landscaping – provide hydroseed on all graded areas.
- 15.7 Irrigation Sprinklers – not included