WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE

DETROIT, MICHIGAN

WALKER CONSULTANTS

525 Avis Drive Suite 1
Ann Arbor, MI 48108
734.663.1070 Ph
walkerconsultants.com

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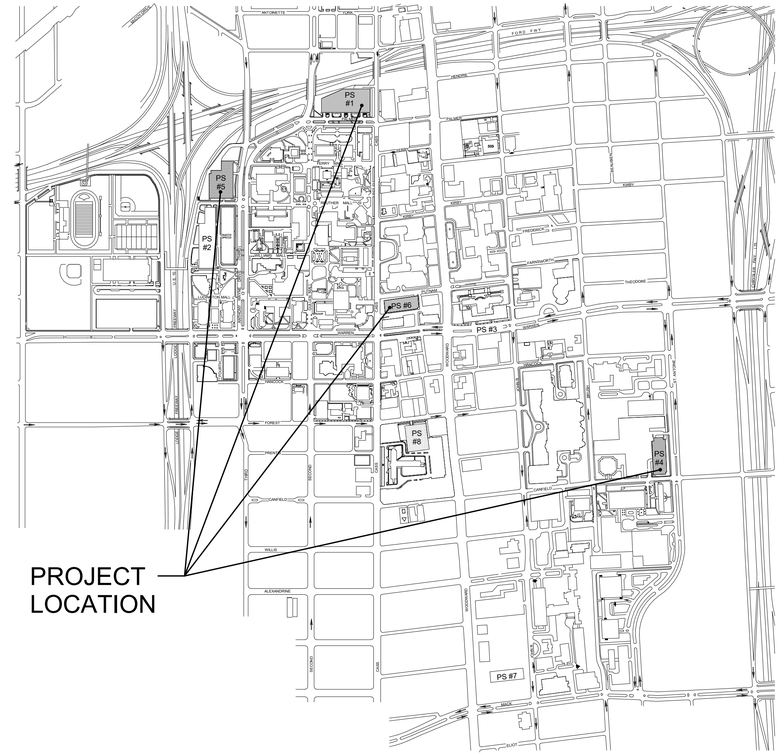


SITE LOCATION MAP

BIDDING & CONSTRUCTION
03/24/2022

GENERAL RESTORATION NOTES

A. CONSTRUCTION

1. CONTRACTOR SHALL PERFORM ALL CONSTRUCTION IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE OF MICHIGAN, AND CITY OF DETROIT CODES AND ORDINANCES, INCLUDING FIRE CODES. THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER OF ANY KNOWN NONCONFORMITY WITH THE INTENT OF THE CONSTRUCTION DOCUMENTS AND AS-BUILT CONDITIONS TO THE APPLICABLE CODES, LAWS OR ORDINANCES AND REQUEST CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH WORK WHICH IS DEEMED IN CONFLICT WITH THE APPLICABLE CODES, LAWS OR ORDINANCES.
2. ALL MATERIAL PROPERTIES SHALL BE AS NOTED IN SPECIFICATIONS.
3. PRIOR TO FABIRCATION OF ANY MATERIAL OR PLACEMENT OF CONCRETE, FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS AS SHOWN ON DRAWINGS. REPORT ALL DISCREPANCIES IN THE FIELD TO ENGINEER IMMEDIATELY.
4. DO NOT SCALE DRAWINGS
5. DO NOT EXCEED BASE BID QUANTITIES WITHOUT PRIOR WRITTEN APPROVAL FROM OWNER.

B. CONSTRUCTION DOCUMENTS

1. CONSTRUCTION DOCUMENTS ENTITLED **"WAYNE STATE UNIVERSITY 2022 PARKING STRUCTURES #1, #4, #5, AND #6 REPAIRS AND MAINTENANCE"** INCLUDES THESE DRAWINGS AND SEPARATELY BOUND SPECIFICATIONS. FOR PURPOSE OF PERFORMING THE WORK DRAWINGS AND SPECIFICATIONS SHALL BE A SINGLE UNIT.
2. DIMENSIONS SHOWN ON PLANS ARE BASED ON ORIGINAL CONSTRUCTION DOCUMENTS. THE CONTRACTOR IS REQUIRED TO FIELD VERIFY ALL CONDITIONS FOR THE PURPOSES OF PREPARING THE BID AND PERFORMING THE WORK.
3. REFER TO SPECIFICATION SECTION 020010 FOR SCOPE, DESCRIPTION, AND REQUIREMENTS OF THE WORK.
4. THE EXTENT OF REPAIR AREAS SHOWN ON THE DRAWINGS INDICATES ENGINEER'S ESTIMATES ONLY. THE ESTIMATED UNIT QUANTITIES INCLUDED IN THE BID DOCUMENTS ARE BASED ON ENGINEER'S ESTIMATED UNITS AND ARE FOR BID PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXTENT AND LOCATIONS OF REPAIR AREAS. THE ACTUAL REPAIR QUANTITIES SHALL BE VERIFIED AND AGREED UPON BY THE OWNER AND ENGINEER PRIOR TO COMMENCING THE REPAIR WORK.
5. WORK SHALL BE PERFORMED IN COORDINATION WITH CONSTRUCTION OBSERVATIONS BY THE ENGINEER TO DETERMINE IF THE EXPOSED EXISTING CONSTRUCTION IS AS ASSUMED IN THE DESIGN.

C. EXISTING STRUCTURE

1. CONSTRUCTION DOCUMENTS RELY ON THE ORIGINAL DRAWINGS. CONTRACTOR TO VERIFY EXISTING CONDITIONS IN FIELD.
2. TO THE OWNER/ENGINEER'S KNOWLEDGE, NO OUTSTANDING ENVIRONMENTAL CONCERNS ARE PRESENT ON SITE. IF AN OUTSTANDING ENVIRONMENTAL CONCERN IS IDENTIFIED DURING CONSTRUCTION, THE CONTRACTOR IS TO BRING THIS TO THE ATTENTION OF THE ENGINEER AND OWNER.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE ITSELF WITH THE ORIGINAL CONSTRUCTION DRAWINGS FOR THE STRUCTURES. ALL SIGNIFICANT DEVIATIONS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

D. DETAILS AND SYMBOLS

1. ALL REPAIR DETAILS ARE SHOWN ON DRAWING SERIES R-500.
2. DETAILS LABELED "FOR CLARIFICATION ONLY" DO NOT REPRESENT A SEPARATE PRICE ITEM. THESE DETAILS SUPPLEMENT THE BASIC DETAIL TO PROVIDE ADDITIONAL INFORMATION. IN SOME CASES THESE DETAILS SHOW VARIATIONS OF THE TYPICAL CONDITION.
3. WHEN THE WORK ITEM BUBBLE IS NOTED (TYP), IT MEANS THE WORK ITEM OCCURS AT ALL LOCATIONS WITH THE APPLICABLE DETERIORATION OR DESIGNATION SYMBOL OCCURS ON A PLAN.
4. WHERE (T.A.R.) IS NOTED IT MEANS THERE MAY BE AREAS OF THIS WORK IN ADDITION TO THE PARTICULAR DESIGNATED AREAS
5. WHERE TWO OR MORE WORK ITEM BUBBLES ARE SHOWN GROUPED TOGETHER IT MEANS ANY OR ALL OF THE DESIGNATED WORK MAY BE APPLICABLE. COORDINATION OF WORK ITEMS IS THE CONTRACTOR'S RESPONSIBILITY.
6. WHEN WORK ITEM DETAILS ARE LISTED AS INCIDENTAL, THIS WORK IS INCLUDED IN THE PAYMENT OF OTHER WORK ITEMS AND DOES NOT HAVE A SEPARATE PRICE.
7. WHEN THE DETAIL IS LABELED FOR REFERENCE ONLY IT PROVIDES INFORMATION ABOUT INCIDENTAL WORK AND DOES NOT HAVE A PAY UNIT.
8. CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL EXTENT AND LOCATIONS OF REPAIR AREAS IN ACCORDANCE WITH THE SPECIFICATIONS: WORK ITEMS ARE SHOWN ONLY TO REPRESENT THE TYPES OF DETERIORATION.
9. SEE WORK ITEM SPECIFICATION FOR INFORMATION REGARDING DETAILS.

E. CONCRETE PROTECTION FOR REINFORCEMENT

1. THE FOLLOWING APPLIES FOR FULL SECTION CONCRETE REPLACEMENT OR PARTIAL DEPTH REPAIRS AS SHOWN ON THE DRAWINGS.
2. THE MINIMUM CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE PER ACI 318-15.
3. MINIMUM COVER FOR REINFORCING IN NON-PRESTRESSED CONCRETE AND NON-POST TENSION MEMBERS.

	CONCRETE COVER (INCHES)
a. SLAB TOP REINFORCEMENT	1 1/2
b. SLAB BOTTOM REINFORCEMENT	3/4
c. BEAM TOP REINFORCEMENT, U.N.	3"
d. BEAM STARTS AT SIDES AND BOTTOM UP BEING	1 1/2
e. BEAM STARTS AT TOP OF BEING	2 1/2
f. COLUMN TIES	1 1/2

*OR 3X BAR DIAMETER, WHICHEVER IS GREATER.

F. EPOXY COATING FOR REINFORCEMENT AND ANCHORS

1. EPOXY COAT ALL REINFORCEMENT, EXCEPT WELDED WIRE REINFORCEMENT, IN CAST IN PLACE CONCRETE

G. SHORING AND BRACING

1. THE SCOPE OF THIS PROJECT INVOLVES A SELECTIVE DEMOLITION AND REPAIR OF STRUCTURAL BUILDING ELEMENTS THAT WILL REQUIRE TEMPORARY SHORING OF EXISTING AND NEW CONSTRUCTION TO REMAIN. CONTRACTOR SHALL GENERATE A CONSTRUCTION/SHORING PROGRAM AND SUBMIT TO ENGINEER FOR RECORD TWO (2) WEEKS PRIOR TO THE COMMENCEMENT OF WORK.
2. CONTRACTOR SHALL PROVIDE ALL SHORING, BRACING, SHEETING, ETC. REQUIRED FOR SAFETY AND PROPER EXECUTION OF THE WORK.
3. CONTRACTOR IS SOLEY RESPONSIBLE TO PREPARE SHOP DRAWINGS FOR BRACING / SHORING MEMBERS DESIGNED AND STAMPED/SEALED BY A REGISTERED PROFESSIONAL ENGINEER (REGISTERED IN THE STATE OF MICHIGAN) AND SUBMIT THEM TO THE ENGINEER FOR RECORD.
4. THE CONTRACTOR SHALL PROVIDE STAMPED/SIGNED CALCULATIONS, PLANS AND DETAILS FOR THE TEMPORARY SUPPORT OF NEW AND EXISTING CONSTRUCTION TO REMAIN PREPARED BY AN ENGINEER LICENSED TO PRACTICE IN THE STATE OF MICHIGAN.
5. THE DESIGN OF THE SHORING AND BRACING MEMBERS SHALL INCLUDE ALL CHANGES IN THE STRUCTURE CAUSED BY THE SHORING AND BRACING.

H. EXISTING SERVICES AND UTILITIES

1. CONTRACTOR SHALL REVIEW ALL EXISTING CONDITIONS TO DETERMINE ALL ELECTRICAL AND MECHANICAL SERVICES AND UTILITIES AFFECTED BY THE REPAIR WORK. MAKE ALL NECESSARY TEMPORARY CONNECTIONS TO MAINTAIN EXISTING SERVICES TO ALL AREAS OF THE FACILITIES OR OTHER AREAS (NOT IN CONTRACT) AFFECTED BY WORK. THE CONTRACTOR SHALL SUBMIT THE METHODS AND SCHEDULE OF TEMPORARY CONNECTIONS FOR THE OWNER'S APPROVAL PRIOR TO COMMENCEMENT.
2. OWNER WILL CONTINUE TO USE THE STRUCTURES DURING RESTORATION. CONTRACTOR MUST PHASE AND ARRANGE WORK TO MAINTAIN ACCESS AT ALL TIMES TO ALL AREAS THAT ARE NOT UNDER CONSTRUCTION FOR BOTH VEHICLES AND PEDESTRIANS.
3. THE CONTRACTOR SHALL VERIFY WORK HOURS WITH THE OWNER. CONTRACTOR SHALL COORDINATE OFF-HOURS, WEEKEND, AND HOLIDAY WORK WITH OWNER AT LEAST 72 HOURS IN ADVANCE.
4. THE CONTRACTOR IS RESPONSIBLE FOR COLLECTION AND REMOVAL OF ALL CONSTRUCTION DEBRIS ON A DAILY BASIS, AND THE SITE SHALL BE LEFT IN A NEAT AND ORDERLY CONDITION, SATISFACTORY TO THE OWNER.
5. PROVIDE AND INSTALL TEMPORARY SIGNAGE AND BARRIERS PER W.I. SERIES 1.5 PRIOR TO START OF WORK. REFER TO SECTION 020010 FOR SPECIFIC REQUIREMENTS.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL ADJACENT STRUCTURES, LANDSCAPING, AND OTHER SURFACES AND ITEMS WHICH COULD BE AFFECTED BY THE WORK.
7. PROTECT ALL EXISTING CONSTRUCTION AND RESTORE TO EXISTING CONDITION FOLLOWING COMPLETION OF WORK, INCLUDING BUT NOT LIMITED TO: GLASS, DOORS, WALLS, LIGHT FIXTURES, CONDUIT, SECURITY CAMERAS, PIPE, EQUIPMENT, ETC.
8. COVER ANY EXISTING SIGNS THAT MAY CONFLICT WITH TEMPORARY TRAFFIC CONTROL SIGNS. REVIEW WITH OWNER PRIOR TO COVERING EXISTING SIGNS. RETURN TO SERVICE UPON COMPLETION OF PROJECT.
9. CONTRACTOR SHALL COORDINATE WITH ALL OTHER ONGOING WSU PROJECTS WITHIN AND NEARBY PARKING STRUCTURES & SURROUNDING AREAS.
10. EMBEDDED ELECTRICAL CONDUIT MAY BE PRESENT IN SLABS-ON-GROUND AND SUPPORTED SLABS. CONTRACTOR SHALL LOCATE EMBEDDED ITEMS PRIOR TO START OF WORK. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID CUTTING/DAMAGING EMBEDDED AND SURFACE MOUNTED CONDUIT/WIRING. IF CONDUIT/WIRING IS DAMAGED AS RESULT OF CONSTRUCTION OPERATIONS, NOTIFY OWNER AND ENGINEER IMMEDIATELY. CONDUIT/WIRING DAMAGE BY CONSTRUCTION OPERATIONS SHALL BE REPAIRED BY CONTRACTOR AT NO COST TO OWNER.
11. PROVIDE A MINIMUM 72 HOUR NOTICE TO THE OWNER REPRESENTATIVE PRIOR TO ANY INTERRUPTIONS IN UTILITY SERVICES.
12. PRIOR TO START OF WORK, VERIFY STATUS OF EXISTING SECURITY SYSTEMS (IE: IDENTIFY ANY NON-FUNCTIONAL CAMERAS / COMPONENTS). PERFORM SIMILAR REVIEW OF ELEVATORS AND LIGHTING SYSTEMS. PROVIDE WRITTEN DOCUMENTATION AND PHOTOS/VIDEO TO OWNER PRIOR TO COMMENCING WITH REPAIRS.
13. CONTRACTOR SHALL PERFORM DETAILED SURVEY TO DOCUMENT EXISTING CONDITIONS AT PARKING STRUCTURES AND ADJACENT AREAS PRIOR TO START OF CONSTRUCTION. SUBMIT WRITTEN DOCUMENTATION AND PHOTOS/VIDEO TO OWNER.
14. CONTRACTOR SHALL INSTALL FILTERS ON DRAINS (ALL LEVELS) TO PREVENT DUST/DEBRIS GENERATED FROM CONSTRUCTION FROM ENTERING DRAINAGE SYSTEM, AND REMOVE UPON COMPLETION OF WORK.

I. CONSTRUCTION PHASING, SEQUENCING AND TRAFFIC MAINTENANCE

1. WORK SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE AND ALL IDENTIFIED PROJECT REPRESENTATIVES.
2. OWNER WILL CONTINUE TO USE STRUCTURES DURING RESTORATION. CONTRACTOR MUST PHASE AND ARRANGE WORK SO AS TO MAINTAIN ACCESS AT ALL TIMES TO ALL AREAS THAT ARE NOT UNDER CONSTRUCTION FOR BOTH VEHICLES AND PEDESTRIANS.
3. THE CONTRACTOR SHALL VERIFY WORK HOURS WITH THE OWNER. CONTRACTOR SHALL COORDINATE OFF-HOURS, WEEKEND, AND HOLIDAY WORK WITH OWNER AT LEAST 72 HOURS IN ADVANCE.
4. THE CONTRACTOR IS RESPONSIBLE FOR COLLECTION AND REMOVAL OF ALL CONSTRUCTION DEBRIS ON A DAILY BASIS, AND THE SITE SHALL BE LEFT IN A NEAT AND ORDERLY CONDITION, SATISFACTORY TO THE OWNER.
5. PROVIDE AND INSTALL TEMPORARY SIGNAGE AND BARRIERS PER W.I. SERIES 1.5 PRIOR TO START OF WORK. REFER TO SECTION 020010 FOR SPECIFIC REQUIREMENTS.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL ADJACENT STRUCTURES, LANDSCAPING, AND OTHER SURFACES AND ITEMS WHICH COULD BE AFFECTED BY THE WORK.
7. PROTECT ALL EXISTING CONSTRUCTION AND RESTORE TO EXISTING CONDITION FOLLOWING COMPLETION OF WORK, INCLUDING BUT NOT LIMITED TO: GLASS, DOORS, WALLS, LIGHT FIXTURES, CONDUIT, SECURITY CAMERAS, PIPE, EQUIPMENT, ETC.
8. COVER ANY EXISTING SIGNS THAT MAY CONFLICT WITH TEMPORARY TRAFFIC CONTROL SIGNS. REVIEW WITH OWNER PRIOR TO COVERING EXISTING SIGNS. RETURN TO SERVICE UPON COMPLETION OF PROJECT.
9. CONTRACTOR SHALL COORDINATE WITH ALL OTHER ONGOING WSU PROJECTS WITHIN AND NEARBY PARKING STRUCTURES & SURROUNDING AREAS.

J. CONCRETE REQUIREMENTS (SEE SECTION 020010 FOR SPECIFIC USES)

1. CAST IN PLACE CONVENTIONAL CONCRETE

a. COMPRESSIVE STRENGTH	5000 PSI AT 28 DAYS
b. WATER-CEMENT RATIO	0.40 MAX
c. MAX SIZE AGGREGATE	1/2 INCH FOR PARTIAL DEPTH 3/4 INCH FOR FULL DEPTH
d. SLUMP (MAXIMUM)	6" WITH SUPER PLASTICIZER (AFTER WATER REDUCER ADDITION)
e. AIR CONTENT	7% ± 1.5%
f. CEMETITIOUS MATERIAL CONTENT	658 LB/C.Y. MIN.*
g. CORROSIVE INHIBITOR	3 GAL/CY
h. MICROSILICA CONTENT	5% BY WT. OF CEMENT

MAXIMUM PERMISSIBLE CEMENTITIOUS CONTENT

a. FLY ASH:	25%
b. SLAG:	50%
c. FLY ASH & SLAG:	50%

2. PREPACKAGED REPAIR MATERIAL (033760)
   COMPRESSIVE STRENGTH: 5000 PSI AT 28 DAYS
3. ENGINEER SHALL BE NOTIFIED A MINIMUM OF 24 HOURS FOR INSPECTION OF PREPARED CONCRETE SURFACES.

NOTE: CEMENTITIOUS MATERIAL INCLUDES CEMENT, SILICA FUME, AND FLY ASH.

K. GENERAL P-T TENDON REPAIR NOTES:

1. TENDONS ARE NEAR THE FLOOR SURFACE AT SPALLS AND DELAMINATIONS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING SAWCUTTING AND REMOVALS SO AS NOT TO DAMAGE EXISTING TENDONS OR TENDON SHEATHS. TENDONS MAY BREAK WITH EXPLOSIVE FORCE DURING REMOVALS OR WHEN CUT. CHIPPING WITH 15LB. HAMMERS SHALL BE USED IN LIEU OF SAWCUTTING NEAR SHALLOW TENDONS.
2. CAUTION IS REQUIRED WHEN PERFORMING CONCRETE REMOVALS AT BEAMS. ELEVATIONS OF P-T TENDONS IN BEAMS VARY. COORDINATE INSPECTION OF EXPOSED BEAM TENDONS FOLLOWING CONCRETE REMOVALS. CONTRACTOR IS SOLEY RESPONSIBLE FOR THE FOLLOWING:
   - A. TRAINING AND MONITORING HIS WORK FORCE CONCERNING THE SAFETY PROCEDURES THAT SHOULD BE EMPLOYED IN THE EXECUTION OF HIS WORK.
   - B. MAINTAINING STABILITY OF THE STRUCTURE AND ELEMENTS WITHIN THE STRUCTURE, DURING REPAIR WORK, INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF SHORING AND BRACING.
   - C. WHERE REQUIRED, CONTRACTOR SHALL SUBMIT SEALED DRAWINGS AND CALCULATIONS FROM QUALIFIED PROFESSIONAL ENGINEER, LEGALLY REGISTEREDIN STATE OF MICHIGAN TO PERFORM SUCH CALCULATIONS AND DRAWINGS.
3. DURING THE REPAIR SEQUENCE, SHORING OF THE FLOOR SLAB MAY BE REQUIRED ALONG THE TENDON RUN. AS A MINIMUM, SHORES SHALL BE INSTALLED AT ALL SITES ALONG THE TENDON RUN WHEN TWO OR MORE ADJACENT TENDON FAILURES OCCUR.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING AVAILABLE ORIGINAL DRAWINGS. REVIEW ORIGINAL DRAWINGS AND COORDINATE REPAIR PROCEDURES PRIOR TO PROCEEDING WITH THE WORK. REPRESENTATIVE LOCATIONS OF EXISTING P-T TENDONS AND ANCHORS IN THE FLOOR SLAB ARE SHOWN. EXACT LOCATIONS SHALL BE VERIFIED IN FIELD BY CONTRACTOR PRIOR TO CONCRETE REMOVALS. EXISTING REINFORCING STEEL NOT SHOWN ON REPAIR DETAILS(UNO). DO NOT CUT ANY REINFORCING, UNLESS DIRECTED BY ENGINEER IN WRITING.
5. P-T REPAIRS AND DE-TENSIONING PROCEDURES SHALL BE REVIEWED AT PRECONSTRUCTION OR PREINSTALLATION MEETING. NO DEVIATION FROM AGREED UPON PROCEDURES WILL BE ALLOWED UNLESS DIRECTED IN WRITING BY THE ENGINEER. AS A MINIMUM, DURING DETENSIONING OPERATIONS, CLOSE ALL FLOOR SPANS INCLUDING LEVEL BELOW, BEING DETENSIONED, TO PREVENT INJURY IN THE EVENT OF A TENDON POPPING OUT OF THE SLAB.
6. NOT ALL TENDON FAILURES ARE IN AREAS OF FLOOR DELAMINATION. PERFORM REMOVAL OF ALL SOUND CONCRETE AS REQUIRED TO EXPOSE TENDONS AND ANCHORS.
7. MAINTAIN ORIGINAL TENDON PROFILES WITHIN CONCRETE REMOVAL AREAS. SEE DETAIL 21.0.1 SPECIFIC REQUIREMENTS. DO NOT REMOVE CONCRETE BELOW TENDONS UNLESS REQUIRED BY SPLICING REPAIRS OR TO REPLACE DAMAGED SHEATHING.
8. TENDONS MAY OCCUR INDIVIDUALLY OR BUNDLED. USE CAUTION TO AVOID DAMAGE TO TENDONS IN REPAIR AREA. CONTRACTOR CAUSED DAMAGE TO TENDONS SHALL BE REPAIRED AS DIRECTED BY ENGINEER AT NO COST TO OWNER.
9. ALL P-T REPAIRS SHALL BE REVIEWED BY ENGINEER PRIOR TO COMMENCING WORK RELATED TO THE P-T REPAIR.
10. ALL WORK RELATED TO POST-TENSIONED REPAIRS SHALL BE RESPONSIBILITY OF, AND SHALL BE MONITORED BY, FIRM AND PERSONNEL WITH PTI CERTIFICATION.

L. ABBREVIATIONS

1. APPROX = Approximately
2. AGG = Aggregate
3. BM = Beam
4. BOT = Bottom
5. CIP = Cast in Place
6. CJ = Construction Joint/Control Joint
7. CLR = Clearnace
8. COL = Column
9. CONC = Concrete
10. DET = Detail
11. EA = Each
12. E.E. = Each End
13. E.S. = Each side
14. EMBED = Embedment Length
15. EJ = Expansion Joint
16. EXIST = Existing
17. FIN = Finished
18. FL = Floor
19. IN = Inches
20. INC = Incidental
21. LF = Linear Foot
22. LS = Lump Sum
23. MAX = Maximum
24. MIN = Minimum
25. N/A = Not Applicable
26. OC = On Center
27. OH = Opposite Hand
28. P/C = Precast
29. REINF = Reinforcement
30. REQ'D = Required
31. SF = Square Foot
32. SIM = Similar
33. SOG = Slab on Ground
34. SPEC = Specification
35. SUPT = Supported
36. T = Top
37. TAR = Typical as Required
38. TYP = Typical
39. UN or UNO = Unless Noted Otherwise
40. WI = Work Item
41. WWR = Welded Wire Reinforcement

M. POST-INSTALLED ANCHORS

1. WEDGE BOLTS – HILTI KWIK BOLT TZ, UNLESS NOTED.
2. ADHESIVE ANCHORS – HILTI HY200, UNLESS NOTED.
3. CONTRACTOR SHALL LOCATED EXISTING EMBEDDED REINFORCEMENT USING NON-DESTRUCTIVE TESTING PRIOR TO FABRICATION OF ATTACHMENTS OR DRILLING OF HOLES. NOTIFY ENGINEER OF OBSTRUCTIONS THAT WILL PREVENT INSTALLATION OF ANCHORS AT DESIGN LOCATIONS.
4. POST INSTALLED ANCHORS MUST BE INSTALLED USING THE SPACING AND EDGE DISTANCES GIVEN ON THE PLANS OR DETAILS. IF FIELD CONDITIONS DICTATE THAT THE ANCHOR SPACING OR EDGE DISTANCE BE MODIFIED, THE CONTRACTOR SHALL SUBMIT A FIELD SKETCH TO THE ENGINEER FOR REVIEW PRIOR TO MAKING ANY MODIFICATIONS.
5. POST INSTALL ANCHOR HOLES SHALL BE DRILLED USING A HAMMER DRILL. CORING DRILLING HOLES WILL NOT BE PERMITTED WITHOUT ENGINEER'S APPROVAL FOR EACH INSTALLATION LOCATION.
6. ADHESIVE ANCHORS SHALL BE INSTALLED BY AN ACI-CRSI CERTIFIED "ADHESIVE ANCHOR INSTALLER"

N. NON-SHRINK GROUT

1. COMPRESSIVE STRENGTH: 8000 PSI MIN.

O. TESTING & INSPECTION NOTES

1. FOLLOWING TESTS AND INSPECTION SHALL BE PERFORMED BY AN INDEPENDENT TESTING AND INSPECTION AGENCY EMPLOYED BY OWNER AND APPROVED BY ENGINEER. TEST AND INSPECTION REPORTS SHALL BE SUBMITTED FOR APPROVAL TO OWNER AND ENGINEER.
2. REQUIRED VERIFICATION AND INSPECTION

A. CONCRETE CONSTRUCTION	CONT.	PERIODIC
1. VERIFYING USE OF REQUIRED DESIGN MIX.		X
2. PERFORM SAMPLING AND TESTING OF CONCRETE ACCORDING TO SPECIFICATIONS	X	
3. INSPECTION FOR MAINTENENCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.		X

P. PHASING INSTRUCTION AND NOTES

1. DEFINITIONS
   - a. CONSTRUCTION PHASING, SEQUENCING AND TRAFFIC MAINTENANCE WORK SEQUENCE SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE AND ALL IDENTIFIED PROJECT REPRESENTATIVES. OWNER WILL CONTINUE TO USE STRUCTURES DURING RESTORATION. CONTRACTOR MUST PHASE AND ARRANGE WORK SO AS TO MAINTAIN ACCESS AT ALL TIMES TO AREAS THAT ARE NOT UNDER CONSTRUCTION FOR BOTH VEHICLES AND PEDESTRIANS.
   - b. PROTECTION ZONE: THIS IS AN AREA THAT IS TAKEN OUT OF SERVICE AND ISOLATED FROM THE GARAGES NORMAL PEDESTRIAN AND VEHICULAR CIRCULATION TO PROTECT THE PATRONS FROM HAZARDS RESULTING FROM WORK BEING PERFORMED ABOVE AND/OR NEARBY. WORK THAT REQUIRES PROTECTION ZONES SHALL INCLUDE SHOT BLAST/SEALER APPLICATION (WHEN JOINTS ARE OPEN), CONCRETE DEMOLITION, CONCRETE PLACEMENT, CEILING REMOVAL/SURFACE PREP, WELDING AND SEALANT REPLACEMENT AND ALL OTHER SIMILAR ACTIVITIES THAT MAY CAUSE DISRUPTION TO VEHICLES / PATRONS.
   - c. WORK ZONE: THIS IS AN AREA THAT IS CAPTURED FOR THE PURPOSE OF PERFORMING PROJECT RELATED WORK ITEMS. THE AREA SHALL BE BARRICADED TO PREVENT GARAGE PATRONS/VEHICLES FROM ENTERING/PARKING WHILE CONTRACTORS ARE IN CONTROL OF THE AREA.
   - d. WORK PHASE AREA: THIS INCLUDES ALL AREAS AFFECTED BY A PARTICULAR PHASE INCLUDING THE WORK ZONE, PROTECTION ZONE, AND THEIR USE FOR TEMPORARY PEDESTRIAN AND VEHICLE CIRCULATION.
   - e. PROTECTION PARTITION/BARRICADES: THIS DESCRIBES THE BARRICADES AND PROTECTION ENCLOSURES THAT WILL BE INSTALLED AROUND THE WORK AND PROTECTION ZONES TO KEEP GARAGE PATRONS AND THEIR VEHICLES OUT OF THOSE RESPECTIVE AREAS. IN ADDITION THESE ELEMENTS MUST KEEP DUST AND OTHER CONSTRUCTION RELATED DEBRIS FROM MIGRATING IN THE OCCUPIED AREAS OF THE GARAGE.
2. PHASING
   - a. PHASING SHALL BE AS SCHEDULED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER/OWNER.
   - b. THE CONTRACTOR SHALL PROVIDE UNOBSTRUCTED PEDESTRIAN ACCESS (PROTECTED WHEN NECESSARY) TO ALL EMERGENCY EGRESS STAIRS AND EXITS AT ALL TIMES. THE CONTRACTOR SHALL INSTALL AND MAINTAIN SIGNAGE THAT CLEARLY DIRECTS PATRONS TO AND FROM THESE DESTINATIONS. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN LIGHTING FOR THESE PATHS IN THE EVENT THE GARAGE LIGHTING IS BLOCKED OR REDUCED BY PROJECT RELATED WORK.
   - c. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CLEAR WORK PHASE AREA OF VEHICLES. THE CONTRACTOR SHALL WORK IN UNISON WITH THE OWNER TO CAPTURE THE AREAS BY INCREMENTALLY INSTALLING BARRICADES TO PREVENT VEHICLES FROM REENTERING THE AREA AS IT IS CLEARED. IN ADDITION TEMPORARY SIGNAGE SHALL BE INSTALLED AND ADJUSTED BY THE CONTRACTOR DURING THE WORK/PROTECTION ZONE CAPTURE EFFORT. NOTE THAT NEW AREAS CANNOT BE CAPTURED PRIOR TO WORK ZONES OR PORTIONS THEREOF BEING RETURNED TO SERVICE SO THAT THE MAXIMUM NUMBER OF SPACES OUT OF SERVICE SHALL NOT BE EXCEEDED. ALLOW 24 HOURS BETWEEN RETURNING SPACES TO SERVICE AND OCCUPYING EQUAL NUMBER OF SPACES FOR THE NEXT PHASE OF WORK
   - d. BARRICADES SHALL BE OF SUFFICIENT CONSTRUCTION TO PREVENT INADVERTENT ACCESS BY PATRON VEHICLES AND PEDESTRIANS. THE BARRICADES CAN BE INCORPORATED INTO THE WORK ZONE PROTECTION THAT ARE INTENDED TO PREVENT THE ESCAPE OF DUST AND OTHER DEBRIS FROM THE WORK ZONE.
   - e. THE FOLLOWING PARAMETERS SHALL BE CONSIDERED WHEN DEVELOPING PHASING PLANS.
   - f. SEE PHASING NOTES ON SHEET R-002 AND ON PLAN SHEETS FOR STRUCTURE-SPECIFIC PHASING REQUIREMENTS, INCLUDING MAXIMUM PARKING SPACE CLOSURES AND CONSTRUCTION START AND COMPLETION DATES.

3. PEDESTRIAN PATH WIDTH(MINIMUM):	6'-0"
4. PEDESTRIAN PATH HEADROOM(MINIMUM):	7'-0"
5. TEMPORARY VEHICLE ONE-WAY TRAVEL(MINIMUM):	12'-0"
6. TEMPORARY VEHICLE HEAD ROOM HEIGHT:	AS POSTED AT GARAGE ENTRANCE

   - a. CONTRACTOR SHALL BE RESPONSIBLE TO LOCKOUT STAIR ACCESS INTO WORK, WORK PHASE, AND AREAS UNDER CONSTRUCTION TO PREVENT UNAUTHORIZED PATRON ACCESS. DOOR SHALL BE SEALED OFF TO PREVENT AIRBORNE DUST FROM ENTERING INTO STAIRWAYS AND ELEVATOR SHAFTS.
3. MISCELLANEOUS NOTES
   - a. OWNER AND THE ENGINEER RESERVE THE RIGHT TO ISSUE A STOP WORK ORDER FOR SPECIFIC AREAS/WORK ITEMS IF IN THE OPINION OF EITHER ONGOING WORK DOES NOT MEET THE PHASING PARAMETERS OF THE PROJECT OR PRESENT HAZARDS TO THE PATRONS OF THE GARAGE. CONTRACTOR SHALL NOT BE ENTITLED TO ADDITIONAL COMPENSATION.
   - b. THE PHASING CONCEPTS CONTAINED IN THESE DOCUMENTS ARE INTENDED TO INDICATE REASONABLE SCENARIOS FOR PHASING THE WORK. NOT ALL INFORMATION REQUIRED FOR CONTRACTOR PHASING SUBMITTALS ARE INCLUDED IN THESE CONCEPTS AND THEY DO NOT INCLUDE ALL CHALLENGES THAT WILL BE PRESENT IN PERFORMING THIS PROJECT IN A PHASED MANNER.
   - c. WORK ZONES SHALL NOT BE RETURNED TO SERVICE IF HAZARDOUS CONDITIONS ARE PRESENT.
   - d. DO NOT RETURN AREAS TO SERVICE UNLESS EXISTING STRIPING AFFECTED BY WORK HAS BEEN RESTORED OR NEW STRIPING HAS BEEN APPLIED.

PS#1 - WORK ITEM SCHEDULE - BASE BID

WORK ITEM	DESCRIPTION	UNITS	QUANTITY
1.1	Project Mobilization	L.S.	1
1.5	Temporary Signage & Barriers	L.S.	1
1.6	Means of Access - Exterior Façade	L.S.	1
3.1A	Floor Repair - Partial Depth	S.F.	450
3.2	Floor Repair - Slab-on-Grade	S.F.	200
3.10	Supplemental Reinforcing Dowels	Ea.	50
4.1A	Ceiling Repair - Partial Depth	S.F.	150
4.2	Ceiling Repair - Partial Depth @ Drop Panels	S.F.	200
4.9	Remove Loose Concrete & Coat	L.S.	1
6.1	Column Repair - Partial Depth	S.F.	500
6.2	Column Repair - Partial Depth at Expansion Joint	S.F.	150
6.4	Column Repair - Carbon Fiber Wrap	L.F.	40
11.1	Seal Floor Cracks	L.F.	100
11.2	Replace Joint Sealants (Construction Joints)	L.F.	600
11.4	Tool and Seal Control Joints (For Reference Only)	Incidental	
11.7	Cove Sealant	L.F.	1,800
16.2	Traffic Topping - Replace Existing System	S.F.	2,000
16.3	Traffic Topping - Repair (For Reference Only)	Incidental	
16.4	Traffic Topping - Recoat	S.F.	61,000
18.1	Temporary Shoring	Ea.	300
25.1	Mechanical / Electrical Allowance	Allow.	1
35.1	Masonry - Tuckpointing	L.F.	3,000
35.2	Masonry - Remove/Replace Brick	Ea. Brick	500
35.3	Masonry - Route/Seal Cracks	L.F.	1,000
35.4	Masonry - Sealants	L.F.	1,000
45.1	Paint Traffic Markings	L.S.	1

PS#1 WORK ITEM SCHEDULE - ALTERNATES

WORK ITEM	DESCRIPTION	UNITS	QUANTITY
4.1A	Ceiling Repair - Partial Depth	S.F.	200
6.1	Column Repair - Partial Depth	S.F.	100
6.2	Column Repair - Partial Depth at Expansion Joint	S.F.	50
6.4	Carbon Fiber Wrap	L.F.	15
11.7	Cove Sealant	L.F.	900
16.4	Traffic Topping - Recoat	S.F.	29,000
18.1	Temporary Shoring	Ea.	240
25.3	Mechanical - Pipe & Hangers	L.F.	50
25.4	Mechanical - Supplemental Floor Drains	Ea.	2
25.5	Mechanical - Replace Drain Grate	Ea.	10
26.5	Pressure Test Fire Suppression System	L.S.	1
26.6	Allowance - Standpipe Repairs	Allow.	1
45.2	Paint Standpipes	L.S.	1

Additional Temporary Signage, Temporary Barriers, and Traffic Markings required to perform any Alternate Work Items shall be incidental.

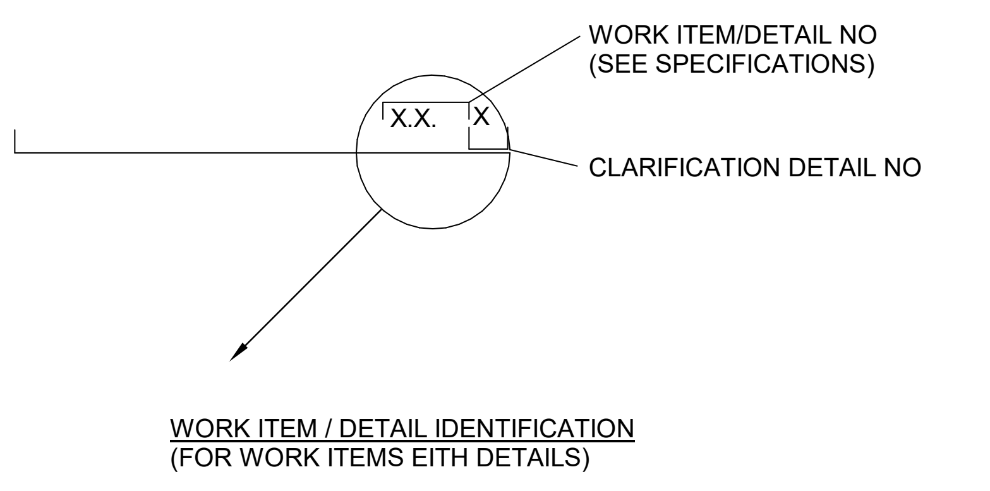
PS#5 - WORK ITEM SCHEDULE - BASE BID

WORK ITEM	DESCRIPTION	UNITS	QUANTITY
1.1	Project Mobilization	L.S.	1
1.5	Temporary Signage & Barriers	L.S.	1
1.6	Means of Access - Exterior Façade	L.S.	1
3.1C	Floor Repair - Partial Depth (P/C Field-Topped)	S.F.	2,300
3.2	Floor Repair - Slab-on-Grade	S.F.	350
3.3C	Floor Repair - Full Depth (P/C Field-Topped)	S.F.	1,400
4.9	Remove Loose Concrete & Coat	L.S.	1
5.1	Beam Repair - Partial Depth (Side)	S.F.	100
5.2	Beam Repair - Partial Depth (Underside)	S.F.	100
6.1	Column Repair - Partial Depth	S.F.	100
7.1	Wall Repair - Partial Depth	S.F.	250
7.2	Wall Repair - Grout Pockets / Connections	Ea.	100
8.1	Tee Stem Repair - Partial Depth	L.F.	20
8.2	Tee Stem Repair - Test Opening	Ea.	2
8.3	Tee Stem Repair - Partially Encased Stem	Ea.	1
8.4	Tee Stem Repair - End Encasement	Ea.	11
8.5	Tee Stem - Cable Repair "Grabb-it"	Ea.	2
10.7	Seal Roof Level Joint Between Bays	L.F.	204
10.9	Replace S.O.G. Transition Joint	L.F.	60
11.1	Seal Floor Cracks	L.F.	500
11.2	Replace Joint Sealants (Tee-to-Tee Joints, Joints Along Beams, etc.)	L.F.	13,000
11.4	Tool & Seal Control Joints (For Reference Only)	Incidental	
11.5	Epoxy Injection	L.F.	1,000
11.6	Silicone Sealants	L.F.	400
11.7	Cove Sealant	L.F.	600
16.3	Traffic Topping - Repair (For Reference Only)	Incidental	
16.4	Traffic Topping - Recoat	S.F.	24,000
16.9	Scaled Surface Repair (Epoxy/Sand)	S.F.	2,000
18.1	Temporary Shoring	Ea.	20
25.1	Mechanical / Electrical Allowance	Allow.	1
25.2	Mechanical - Replace Floor Drains	Ea.	5
25.3	Mechanical - Pipe & Hangers	L.F.	40
36.1	Stair Towers - Replace Lintels	Ea.	8
36.2	Stair Towers - Replace CMU Units	Ea.	130
36.3	Stair Towers - Remove Door/Frame and Refinish Opening	Ea.	5
45.1	Paint Traffic Markings	L.S.	1
45.4	Clean / Paint Steel Connections	Ea.	200
50.2	Install Door Sweeps	Ea.	2

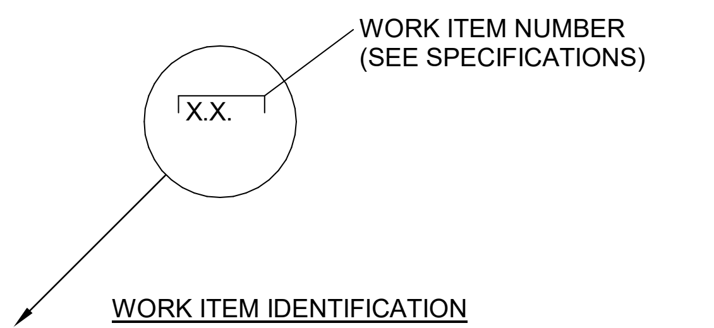
PS#5 WORK ITEM SCHEDULE - ALTERNATES

WORK ITEM	DESCRIPTION	UNITS	QUANTITY
8.3A	Tee Stem Repair - Partially Encased Stem (Additional Length)	L.F.	25
11.7	Cove Sealant	L.F.	1,800
16.1	Traffic Topping - New System (Level 2 & Level 3)	S.F.	152,000
26.5	Pressure Test Fire Suppression System	L.S.	1
26.6	Allowance - Standpipe Repairs	Allow.	1
45.2	Paint Standpipes	L.S.	1
45.5	Paint Stair Tower Interiors	Ea.	2

Additional Temporary Signage, Temporary Barriers, and Traffic Markings required to perform any Alternate Work Items shall be incidental.



WORK ITEM / DETAIL IDENTIFICATION (FOR WORK ITEMS EITH DETAILS)



WORK ITEM IDENTIFICATION (FOR WORK ITEMS WITHOUT DETAILS)

PS#4 - WORK ITEM SCHEDULE - BASE BID

WORK ITEM	DESCRIPTION	UNITS	QUANTITY
1.1	Project Mobilization	L.S.	1
1.5	Temporary Signage & Barriers	L.S.	1
1.6	Means of Access - Exterior Façade	L.S.	1
3.1B	Floor Repair - Partial Depth (P/T)	S.F.	2,500
3.2	Floor Repair - Slab-on-Grade	S.F.	100
3.3B	Floor Repair - Full Depth (P/T)	S.F.	300
3.4	Floor Repair - Curbs	S.F.	10
3.6	Floor Repair - Slab Edge	S.F.	100
4.1B	Ceiling Repair - Partial Depth (P/T)	S.F.	400
4.9	Remove Loose Concrete & Coat	L.S.	1
5.4	Beam Repair - Partial Depth	S.F.	530
5.5	Beam Repair - Partial Depth at Haunch	S.F.	200
6.1	Column Repair - Partial Depth	S.F.	300
7.1	Wall Repair - Partial Depth	S.F.	300
9.1	Expansion Joint - New Concrete Wash w/ Blockout	L.F.	192
9.2	Expansion Joint - New Concrete Blockout	L.F.	400
9.3	Expansion Joint - New Blockout at Ends	Ea.	4
9.4	Expansion Joint - Blockout Repair (E/S)	S.F.	50
10.3	Expansion Joint - Elastomeric Conc. Edged	L.F.	256
10.4	Expansion Joint - Nosing Repair	L.F.	30
10.5	Expansion Joint - Replace Steel Bearing Angles with Slip Bearing System	Ea.	3
10.6	Replace Stair Tower Isolation Joint	L.F.	36
11.4	Tool and Seal Control Joints (For Reference Only)	Incidental	
16.1	Traffic Topping - New System	Incidental	
18.1	Temporary Shoring	Ea.	50
21.2	Protect Exposed P/T Tendons	Incidental	
21.4	P/T Tendon End Anchorage (Dead)	Ea.	3
21.5	P/T Tendon Anchorage - Restressing (if cable fails during stressing under WI 21.6, then restressing shall be paid for under WI 21.5)	Ea.	3
21.6	Tendon Splice Coupling (Center-Pull)	Ea.	10
21.7	Tendon Splice Coupling (Single)	Ea.	10
21.8	Tendon Splice Coupling (Double)	Ea.	5
21.9	P/T Tendon Material	L.F.	100
25.1	Mechanical / Electrical Allowance	Allow.	1
25.2	Mechanical - Replace Floor Drains	Ea.	3
25.3	Mechanical - Pipe & Hangers	L.F.	60
25.5	Mechanical - Replace Drain Grate	Ea.	2
36.4	Stair Towers - Remove Door	Ea.	3
40.6	Replace Corroded Guard Pipe	Ea.	14
41.1	Stairs - Concrete Tread Infill	Ea.	2
41.2	Stairs - Replace Metal Pan Landing/Concrete	Ea.	2
41.4A	Install Stair Tread Plates - West and Northeast Towers	Ea.	80
41.4B	Install Stair Tread Plates - Southwest Tower	Ea.	32
41.5	Re-weld / Reseal Existing Stair Tread Plates	Ea.	2
45.1	Paint Traffic Markings	L.S.	1
45.3	Paint - Expansion Joint Beam	Ea.	4

PS#4 WORK ITEM SCHEDULE - ALTERNATES

WORK ITEM	DESCRIPTION	UNITS	QUANTITY
3.13	Floor Repair - Post-tensioning Stress Box Opening	Ea.	50
10.8	Expansion Joint - Precompressed Vertical Seal	L.F.	162
11.1	Seal Floor Cracks	L.F.	100
11.2	Replace Joint Sealants (Construction Joints)	L.F.	500
11.7	Cove Sealant	L.F.	2,500
16.2	Traffic Topping - Replace Existing System	S.F.	41,000
16.3	Traffic Topping - Repair (For Reference Only)	Incidental	
16.4	Traffic Topping - Recoat	S.F.	145,000
21.6	Tendon Splice Coupling (Center-Pull)	Ea.	50
21.7	Tendon Splice Coupling (Single)	Ea.	50
25.2	Mechanical - Replace Floor Drains	Ea.	4
25.3	Mechanical - Pipe & Hangers	L.F.	90
25.4	Mechanical - Supplemental Floor Drains	Ea.	2
26.5	Pressure Test Fire Suppression System	L.S.	1
26.6	Allowance - Standpipe Repairs	Allow.	1
35.5	Masonry Repairs at Elevator Tower	L.S.	1
41.4A	Install Stair Tread Plates - West and Northeast Towers	Ea.	112
45.2	Paint Standpipes	L.S.	1

Additional Temporary Signage, Temporary Barriers, and Traffic Markings required to perform any Alternate Work Items shall be incidental.

PS#6 - WORK ITEM SCHEDULE - BASE BID

WORK ITEM	DESCRIPTION	UNITS	QUANTITY
1.1	Project Mobilization	L.S.	1
1.5	Temporary Signage & Barriers	L.S.	1
3.1D	Floor Repair - Partial Depth (Concrete Washes)	S.F.	3,000
3.1E	Floor Repair - Partial Depth (Pre-topped)	S.F.	50
3.2	Floor Repair - Slab-on-Grade	S.F.	1,700
3.3D	Floor Repair - Full Depth (Concrete Washes)	S.F.	1,500
4.9	Remove Loose Concrete & Coat	L.S.	1
6.1	Column Repair - Partial Depth	S.F.	50
7.1	Wall Repair - Partial Depth	S.F.	200
10.6	Replace Stair Tower Isolation Joint	L.F.	20
10.9	Replace S.O.G. Transition Joint	L.F.	124
11.1	Seal Floor Cracks	L.F.	1,500
11.2	Replace Joint Sealants (Tee-to-Tee Joints, Wash Joints)	L.F.	11,000
11.3	Replace Capstone Sealants	Ea.	14
11.4	Tool & Seal Control Joints (For Reference Only)	Incidental	
11.7	Cove Sealant	L.F.	3,300
11.8	Replace Roof Flashing Sealant	L.F.	160
16.1A	Traffic Topping - New System (Levels 6 & 7)	S.F.	60,000
16.1B	Traffic Topping - New System (At Shear Walls)	S.F.	2,800
16.3	Traffic Topping - Repair (For Reference Only)	Incidental	
25.2	Mechanical - Replace Floor Drains	Ea.	2
25.3	Mechanical - Pipe & Hangers	L.F.	30
41.1	Stairs - Concrete Tread Infill	Ea.	29
41.3	Stairs - Concrete Landing Infill	S.F.	140
45.1	Paint Traffic Markings	L.S.	1
45.6	Clean / Paint Exposed Steel at Column Bases	Ea.	3
50.1	Supplemental Shear Connectors	Ea.	50

PS#6 WORK ITEM SCHEDULE - ALTERNATES

WORK ITEM	DESCRIPTION	UNITS	QUANTITY
1.6	Means of Access - Exterior Façade	L.S.	1
3.1D	Floor Repair - Partial Depth (Concrete Washes)	S.F.	1,000
11.2	Replace Joint Sealants (Tee-to-Tee Joints, Wash Joints)	L.F.	14,000
11.5	Epoxy Injection	L.F.	500
11.7	Cove Sealant	L.F.	4,500
11.9	Replace Façade Sealants	L.F.	2,400
16.1C	Traffic Topping - New System (Strips at Tee Joints)	S.F.	16,000
16.1D	Traffic Topping - New System (Strips at Washes)	S.F.	22,500
16.9	Scaled Surface Repair (Epoxy/Sand)	S.F.	2,000
25.5	Mechanical - Replace Drain Grate	Ea.	4
26.5	Pressure Test Fire Suppression System	L.S.	1
26.6	Allowance - Standpipe Repairs	Allow.	1
30.1	Replace Junction Boxes	Ea.	10
45.1	Paint Traffic Markings	L.S.	1
45.2	Paint Standpipes	L.S.	1

Additional Temporary Signage, Temporary Barriers, and Traffic Markings required to perform any Alternate Work Items shall be incidental.

WALKER
CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1070 Ph
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
	03/24/2020	BIDDING AND CONSTRUCTION

REVISIONS

ISSUE: BIDDING AND CONSTRUCTION
ISSUE DATE: 3/24/2022
PROJECT NO: 20-002301.00
DRAWN BY: ECC
CHECKED BY: DJP / JAD

SHEET TITLE:
GENERAL NOTES & WORK ITEM SCHEDULES

R-001

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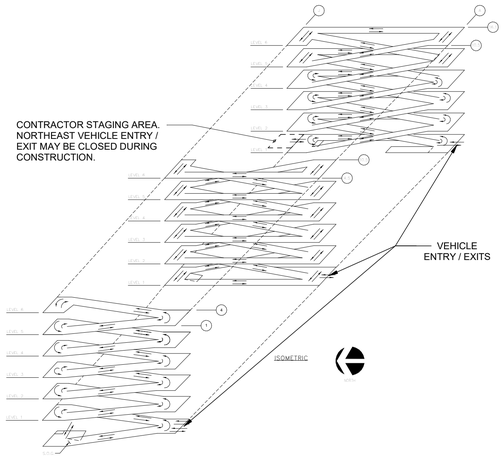
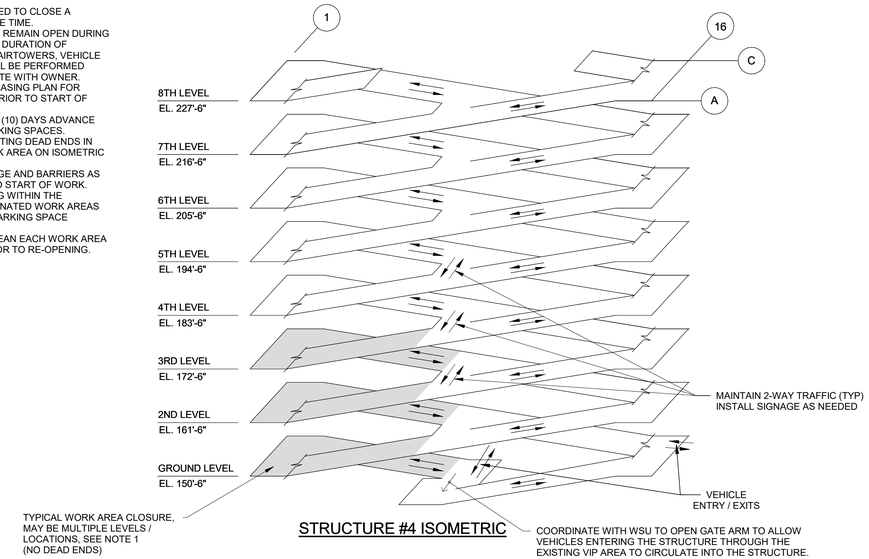
PS #1 PHASING NOTES:

1. CONTRACTOR SHALL BE ALLOWED TO CLOSE A MAXIMUM OF **400 SPACES** AT ONE TIME.
2. ALL VEHICLE ENTRY/EXITS MUST REMAIN OPEN THROUGHOUT DURATION OF PROJECT. WORK AFFECTING STAIRTOWERS, VEHICLE ENTRY/EXITS, & ELEVATORS SHALL BE PERFORMED DURING OFF HOURS. COORDINATE WITH OWNER.
3. CONTRACTOR SHALL SUBMIT PHASING PLAN FOR OWNER/ENGINEER APPROVAL PRIOR TO START OF WORK.
4. PROVIDE OWNER A MINIMUM OF (10) DAYS ADVANCE NOTICE PRIOR TO CLOSING PARKING SPACES.
5. PHASE REPAIRS TO AVOID CREATING DEAD ENDS IN STRUCTURE.
6. INSTALL ALL NECESSARY SIGNAGE AND BARRIERS AS REQUIRED PER W.I. 1.5 PRIOR TO START OF WORK.
7. CONTRACTOR STAGING/PARKING WITHIN THE STRUCTURE SHALL BE IN DESIGNATED WORK AREAS ONLY, SUBJECT TO MAXIMUM PARKING SPACE CLOSURE REQUIREMENTS.
8. CONTRACTOR REQUIRED TO CLEAN EACH WORK AREA TO OWNERS SATISFACTION PRIOR TO RE-OPENING.



PS #4 PHASING NOTES:

1. CONTRACTOR SHALL BE ALLOWED TO CLOSE A MAXIMUM OF **600 SPACES** AT ONE TIME.
2. ALL VEHICLE ENTRY/EXITS MUST REMAIN OPEN DURING DAY TIME HOURS THROUGHOUT DURATION OF PROJECT. WORK AFFECTING STAIRTOWERS, VEHICLE ENTRY/EXITS, & ELEVATOR SHALL BE PERFORMED DURING OFF HOURS. COORDINATE WITH OWNER.
3. CONTRACTOR SHALL SUBMIT PHASING PLAN FOR OWNER/ENGINEER APPROVAL PRIOR TO START OF WORK.
4. PROVIDE OWNER A MINIMUM OF (10) DAYS ADVANCE NOTICE PRIOR TO CLOSING PARKING SPACES.
5. PHASE REPAIRS TO AVOID CREATING DEAD ENDS IN STRUCTURE. SEE TYPICAL WORK AREA ON ISOMETRIC DRAWING TO THE RIGHT.
6. INSTALL ALL NECESSARY SIGNAGE AND BARRIERS AS REQUIRED PER W.I. 1.5 PRIOR TO START OF WORK.
7. CONTRACTOR STAGING/PARKING WITHIN THE STRUCTURE SHALL BE IN DESIGNATED WORK AREAS ONLY, SUBJECT TO MAXIMUM PARKING SPACE CLOSURE REQUIREMENTS.
8. CONTRACTOR REQUIRED TO CLEAN EACH WORK AREA TO OWNERS SATISFACTION PRIOR TO RE-OPENING.

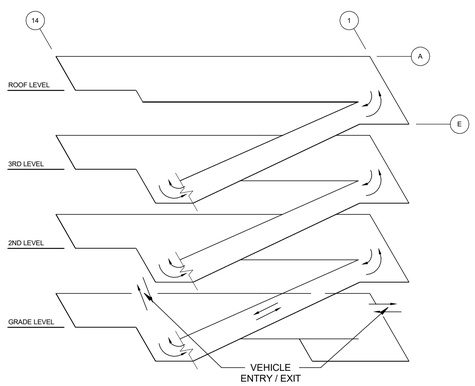


STRUCTURE #4 ISOMETRIC

SCHEDULE (APPLIES TO ALL 4 STRUCTURES):
a. CONSTRUCTION START DATE: MAY 2, 2022.
b. SUBSTANTIAL COMPLETION DATE: AUGUST 12, 2022.
c. FINAL COMPLETION DATE: AUGUST 19, 2022.

PS #5 PHASING NOTES:

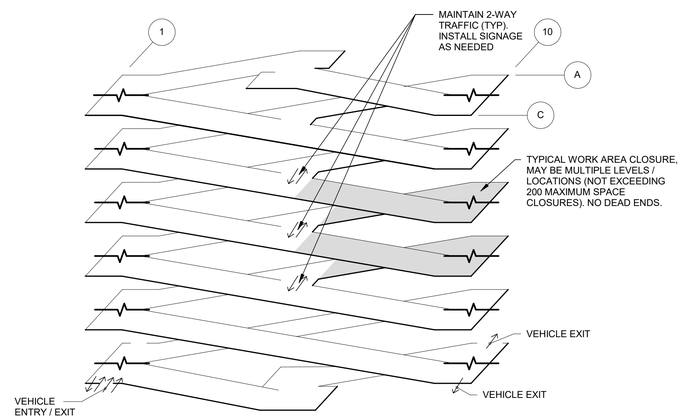
1. ALL CONCRETE WORK AT PS#5 SHALL BE COMPLETED AND CURED BY NO LATER THAN JULY 26, 2022. CONTRACTOR SHALL REOPEN THE STRUCTURE FOR NORMAL USE ON THE DATES OF JULY 27 THRU JULY 31, 2022. COORDINATE IN ADVANCE WITH OWNER.
2. CONTRACTOR SHALL BE ALLOWED TO CLOSE A MAXIMUM OF **400 PARKING SPACES** AT ONE TIME.
3. THE FOLLOWING PERFORMANCE REQUIREMENTS APPLY TO ALL PARKING SPACE CLOSURES:
   a. COORDINATE ALL PROJECT ACTIVITIES WITH OTHER ONGOING ACTIVITIES ON CAMPUS. PROVIDE ADVANCE NOTICE OF CONCRETE POURS, MATERIAL DELIVERIES, ETC. THAT MAY AFFECT OTHER ACTIVITIES ON CAMPUS AND COORDINATE WITH WSU.
   b. ALL VEHICLE ENTRY/EXITS MUST REMAIN OPEN AT ALL TIMES THROUGHOUT DURATION OF PROJECT.
   c. THE ELEVATOR, STAIR TOWERS, AND ALL SIDEWALKS/ROADWAYS ADJACENT TO STRUCTURE SHALL REMAIN OPEN AND FUNCTIONING AT ALL TIMES FOR DURATION OF PROJECT. CONTRACTOR MAY CLOSE ONE STAIR TOWER AT A TIME AS NEEDED TO COMPLETE REPAIR WORK WITH ADVANCE COORDINATION WITH WSU.
   d. NO DEAD ENDS ALLOWED.
   e. CLOSE ALL PARKING AREAS MINIMUM 1 LEVEL BELOW ONGOING CONCRETE REPAIRS.
   f. PROVIDE WSU A MINIMUM OF (10) DAYS ADVANCE NOTICE BEFORE CLOSING PARKING SPACES, OR FOR NOTIFICATION OF VEHICLES TO BE MOVED FROM WORK AREAS.
4. CONTRACTOR SHALL SUBMIT PHASING PLAN FOR OWNER/ENGINEER APPROVAL PRIOR TO START OF WORK, INCLUDING:
   a. PROPOSED SEQUENCE, LOCATION, AND DURATION OF REPAIR WORK AT EACH WORK AREA.
   b. CONTRACTOR PARKING/STAGING (TO OCCUR WITHIN DESIGNATED WORK AREAS ONLY).
   c. COORDINATION & SCHEDULING OF MATERIAL DELIVERIES, CONCRETE POURS, ETC.
   d. HOW VEHICLE ENTRY/EXIT & ELEVATOR/STAIRS WILL BE AFFECTED.



PARKING STRUCTURE #5

PS #6 PHASING NOTES:

1. CONTRACTOR SHALL BE ALLOWED TO CLOSE A MAXIMUM OF **200 SPACES** AT ONE TIME.
2. ALL VEHICLE ENTRY/EXITS MUST REMAIN OPEN THROUGHOUT DURATION OF PROJECT. WORK AFFECTING STAIRTOWERS, VEHICLE ENTRY/EXITS, & ELEVATOR SHALL BE PERFORMED DURING OFF HOURS. COORDINATE WITH OWNER.
3. CONTRACTOR SHALL SUBMIT PHASING PLAN FOR OWNER/ENGINEER APPROVAL PRIOR TO START OF WORK.
4. PROVIDE OWNER A MINIMUM OF (10) DAYS ADVANCE NOTICE PRIOR TO CLOSING PARKING SPACES.
5. PHASE REPAIRS TO AVOID CREATING DEAD ENDS IN STRUCTURE. SEE TYPICAL WORK AREA ON ISOMETRIC DRAWING.
6. INSTALL ALL NECESSARY SIGNAGE AND BARRIERS AS REQUIRED PER W.I. 1.5 PRIOR TO START OF WORK EACH DAY.
7. CONTRACTOR STAGING/PARKING WITHIN THE STRUCTURE SHALL BE IN DESIGNATED WORK AREAS ONLY, SUBJECT TO MAXIMUM CLOSURE REQUIREMENTS.
8. CONTRACTOR REQUIRED TO CLEAN EACH WORK AREA TO OWNERS SATISFACTION PRIOR TO RE-OPENING.



PS #6 ISO PHASING

LEGEND

TYPICAL WORK AREA

WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.665.1017 Ph
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
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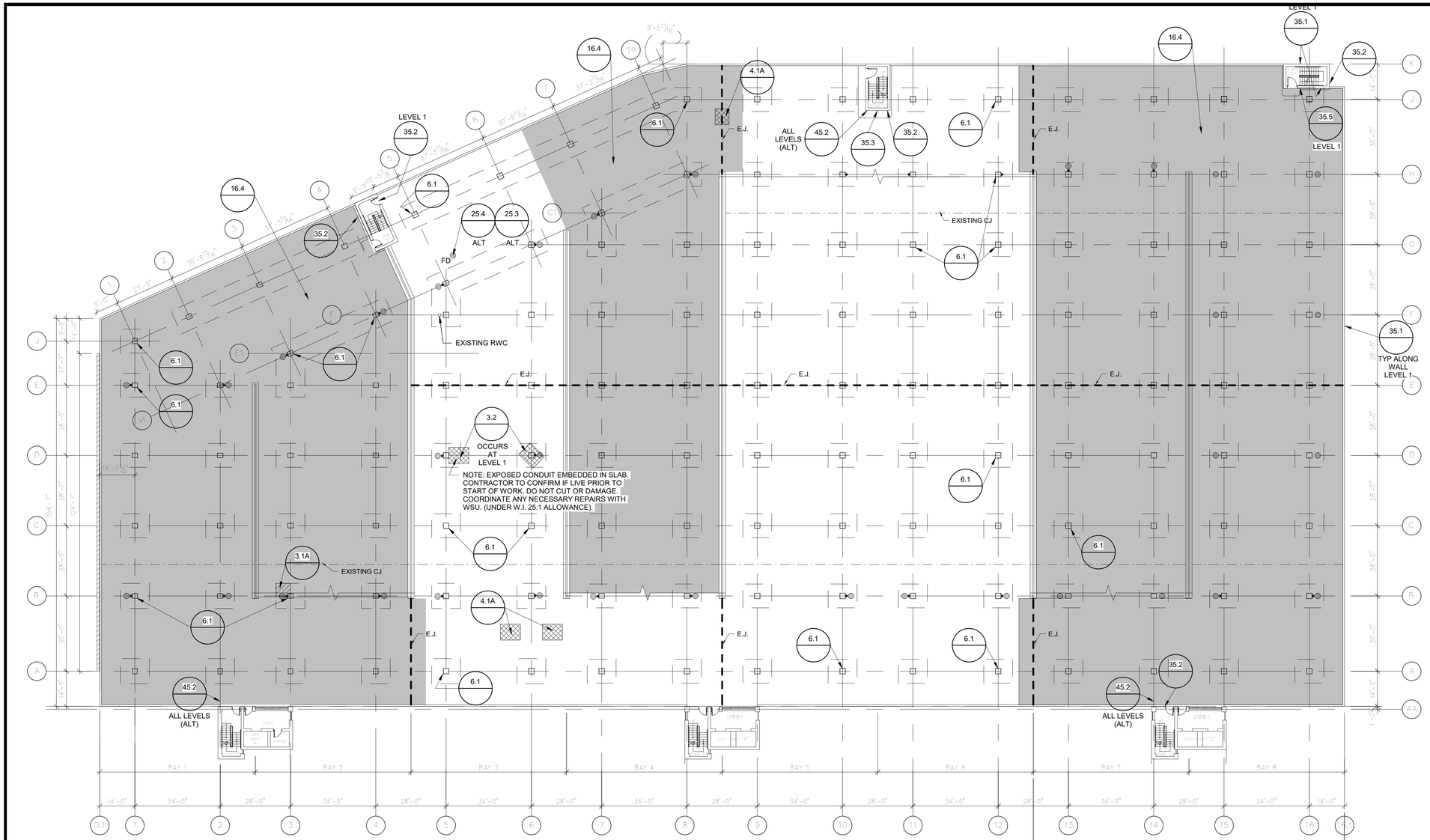
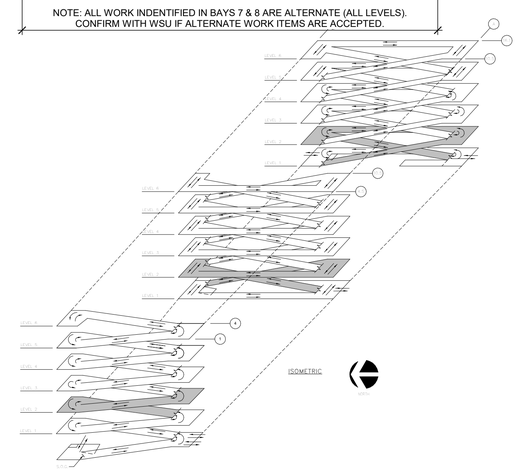
SHEET TITLE:
PHASING PLANS AND NOTES

R-002



1 PS #1 LEVEL 2



SHEET NOTES

1. REPRESENTATIVE REPAIR LOCATIONS SHOWN. ACTUAL EXTENT AND LOCATION OF REPAIRS TO BE LOCATED AND MARKED IN FIELD WITH ENGINEER PRIOR TO START OF WORK. WORK SHALL BE PERFORMED WITH LOCALIZED PARKING SPACE CLOSURES AS NOTED ON THE PHASING DRAWING. COORDINATE CLOSURES IN ADVANCE WITH WSU. LOCALIZED CLOSURES SHALL NOT CREATE DEAD ENDS AND SHALL MAINTAIN VEHICLE ACCESS TO ALL OPEN AREAS OF THE STRUCTURE. PHASE REPAIRS ACCORDINGLY.
2. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL EXISTING FEATURES FOR DURATION OF PROJECT INCLUDING, BUT NOT LIMITED TO: LIGHT FIXTURES, SWITCHES, SECURITY CAMERAS, ELEVATORS, CONDUIT, SIGNAGE, DRAINS, PIPING, PERIMETER RAILINGS, PERMANENT SHORES, ETC. ANY CONTRACTOR-CAUSED DAMAGE SHALL BE REPAIRED/REPLACED TO SATISFACTION OF OWNER AT NO ADDITIONAL COST TO OWNER. REFER TO SECTION 020010 FOR DESCRIPTION OF WORK THAT MAY OR MAY NOT BE APPLIED TO THE M/E ALLOWANCE (W.I. 25.1).
3. VERIFY STATUS OF EXISTING SECURITY SYSTEM WITH OWNER (I.E. IDENTIFY ANY NON-FUNCTIONAL CAMERAS/COMPONENTS) PRIOR TO START OF REPAIRS. ANY NON-FUNCTIONAL LIGHT FIXTURES SHALL ALSO BE DOCUMENTED PRIOR TO START OF REPAIRS. PERFORM SIMILAR REVIEW AND DOCUMENTATION OF ELEVATORS, PARKING EQUIPMENT, LANDSCAPING, AND OTHER EXISTING CONDITIONS PRIOR TO START OF WORK.
4. INSTALL PROTECTION FOR ELEVATOR TOWERS (WATER PROTECTION, SMOKE ALARM PROTECTION, ETC.) PRIOR TO START OF WORK TO ENSURE ALL DEBRIS/WATER /DUST IS PREVENTED FROM ENTERING ELEVATOR TOWERS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CLEANING AND/OR REPAIRS NECESSARY TO RESTORE ELEVATORS TO CLEAN/FUNCTIONAL CONDITION.
5. RESTORE ALL LANDSCAPING FEATURES TO EXISTING CONDITION UPON COMPLETION OF ALL WORK (INCIDENTAL).
6. MAINTAIN ADA-COMPLIANT PEDESTRIAN ROUTES TO STAIR AND ELEVATOR TOWERS AT ALL TIMES.
7. INSTALL PROTECTION FOR FLOOR DRAINS (FILTERS AND OTHER MEANS OF PROTECTION AS NECESSARY) TO PREVENT DEBRIS/WATER FROM ENTERING EXISTING DRAINAGE SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CLEANING AND/OR REPAIRS NECESSARY TO RESTORE EXISTING DRAINAGE SYSTEM TO EXISTING FUNCTIONAL CONDITION (INCLUDING UNDERGROUND PIPING).
8. LOCATE CEILING REPAIRS (W.I. 4.1A/4.2) IN FIELD WITH ENGINEER. REMOVE ALL LIVE LOADS FROM FLOORS ABOVE AND CLOSE LEVEL BELOW ACTIVE CEILING REPAIR AREAS. W.I.'s 4.1A/4.2 OCCUR ON UNDERSIDE OF LEVEL SHOWN.
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11. COORDINATE ALL PROJECT ACTIVITIES WITH OTHER ONGOING ACTIVITIES ON CAMPUS. PROVIDE ADVANCE NOTICE OF CONCRETE POURS, MATERIAL DELIVERIES, ETC. THAT MAY AFFECT OTHER ACTIVITIES ON CAMPUS AND COORDINATE WITH WSU.
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LEGEND

- W.I. 3.1A, 3.2 - FLOOR REPAIRS
- W.I. 4.1A, 4.2 - CEILING REPAIRS
- W.I. 16.1 TRAFFIC TOPPING - NEW SYSTEM
- W.I. 16.4 TRAFFIC TOPPING - RECOAT

X.X.X — WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS)
RX.X — CLARIFICATION DETAIL NO.
SHEET NUMBER

WORK ITEM / DETAIL IDENTIFICATION
(FOR WORK ITEMS WITH DETAILS)

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(FOR WORK ITEMS WITHOUT DETAILS)

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WALKER CONSULTANTS
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Ann Arbor, MI 48108
734.663.1076 (P)
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
	03/24/2022	BIDDING AND CONSTRUCTION

REVISIONS

ISSUE:	BIDDING AND CONSTRUCTION
ISSUE DATE:	3/24/2022
PROJECT NO:	20-002301.00
DRAWN BY:	ECC
CHECKED BY:	DJP

SHEET TITLE:
STRUCTURE #1
LEVEL 2 FLOOR PLAN

R-101

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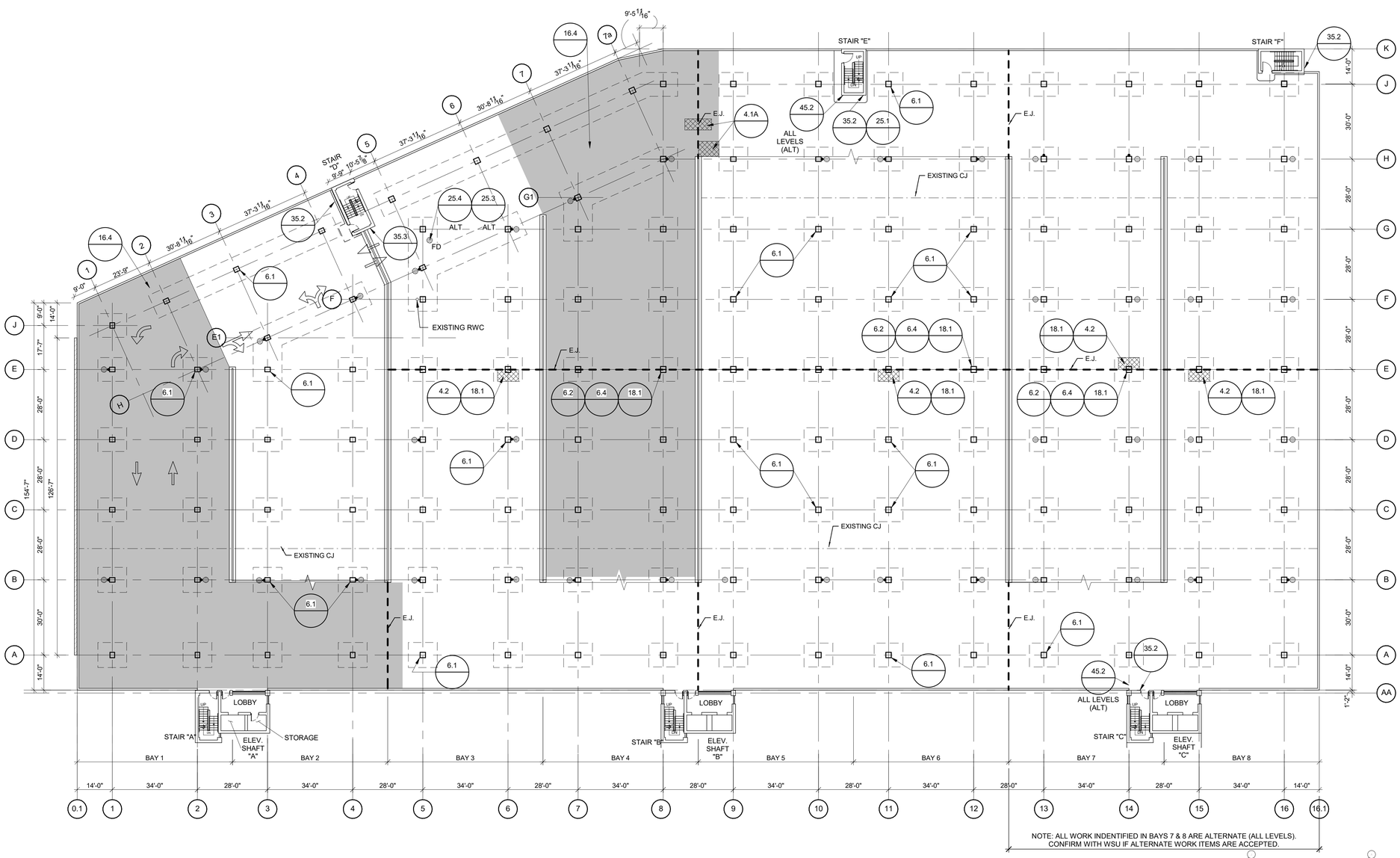
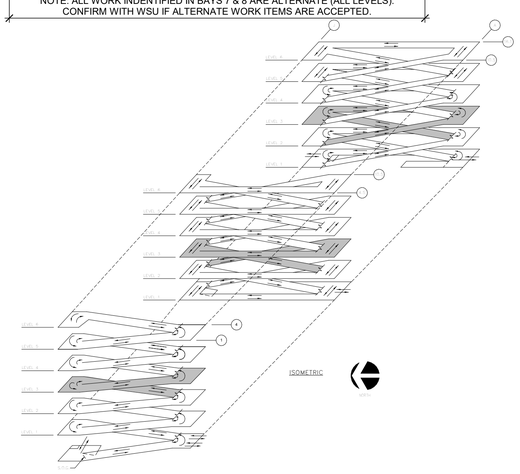


1 PS #1 LEVEL 3



SHEET NOTES

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LEGEND

- W.I. 3.1A, 3.2 - FLOOR REPAIRS
- W.I. 4.1A, 4.2 - CEILING REPAIRS
- W.I. 16.1 TRAFFIC TOPPING - NEW SYSTEM
- W.I. 16.4 TRAFFIC TOPPING - RECOAT

X.X.X / RX.X — WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS); CLARIFICATION DETAIL NO.; SHEET NUMBER

WORK ITEM / DETAIL IDENTIFICATION
(FOR WORK ITEMS WITH DETAILS)

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WORK ITEM IDENTIFICATION
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Ann Arbor, MI 48108
734.662.1075 PH
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
	03/24/2022	BIDDING AND CONSTRUCTION

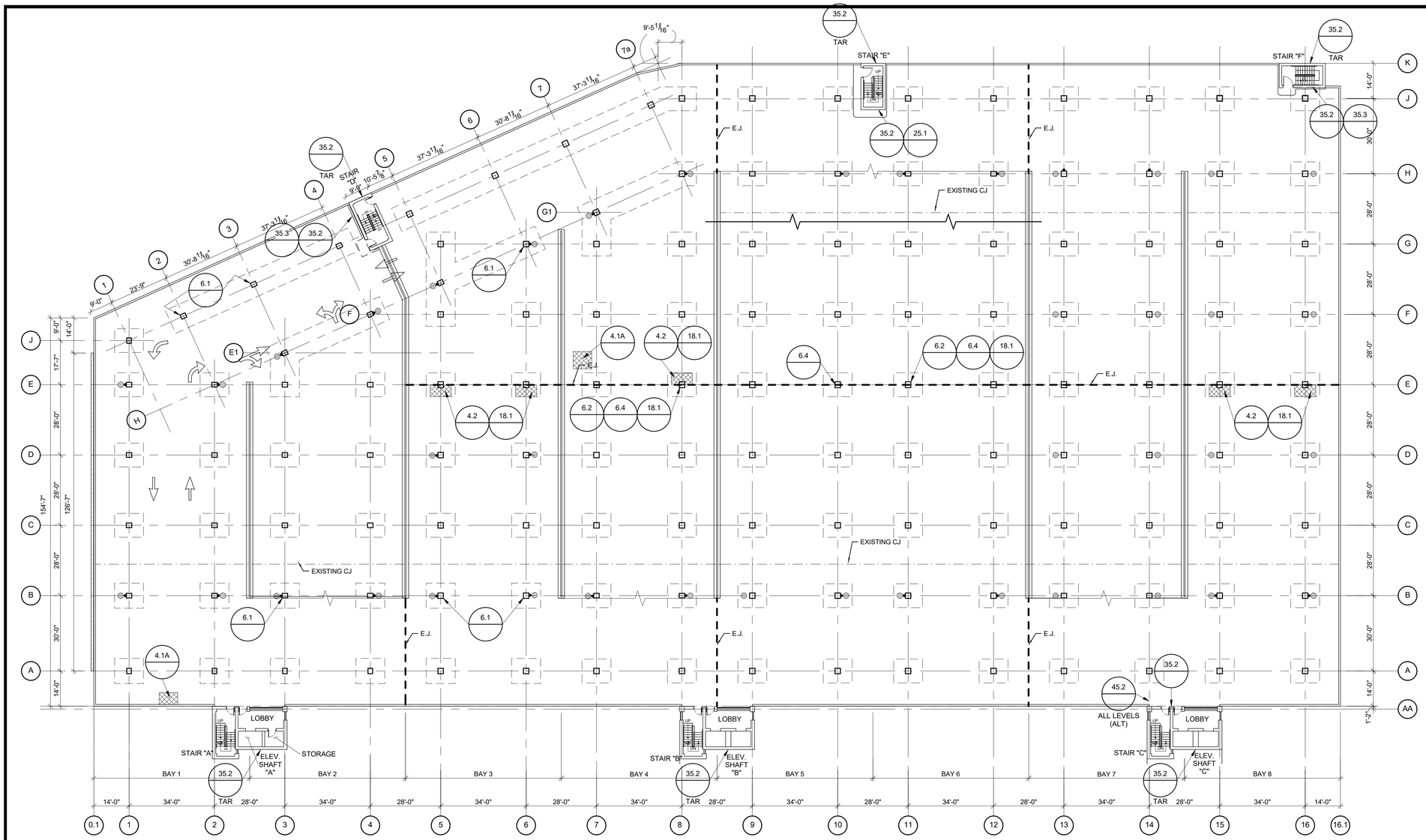
REVISIONS

ISSUE:	BIDDING AND CONSTRUCTION
ISSUE DATE:	3/24/2022
PROJECT NO:	20-002301.00
DRAWN BY:	ECC
CHECKED BY:	DJP

SHEET TITLE:
STRUCTURE #1
LEVEL 3 FLOOR
PLAN

R-102

3/24/2022 2:51:11 PM J:\20-002301-00-WSU_PS_#1_2022_Rprs\Drawings\2022 WSU RENOVATIONS.rvt



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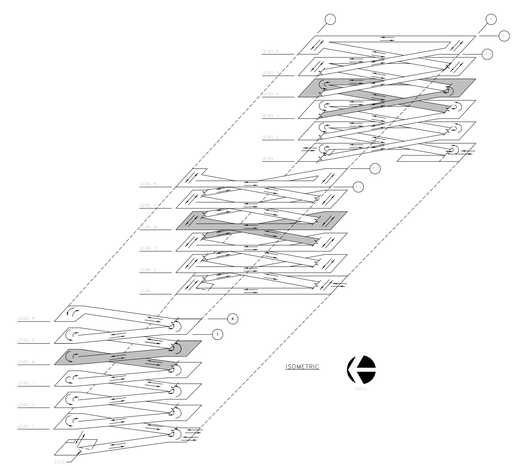

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LEGEND

- W.I. 3.1A, 3.2 - FLOOR REPAIRS
- W.I. 4.1A, 4.2 - CEILING REPAIRS
- W.I. 16.1 TRAFFIC TOPPING - NEW SYSTEM
- W.I. 16.4 TRAFFIC TOPPING - RECOAT

WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS)
X.X.X
RX.X
CLARIFICATION DETAIL NO.
SHEET NUMBER

WORK ITEM / DETAIL IDENTIFICATION
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WORK ITEM NUMBER (SEE SPECIFICATIONS)
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WORK ITEM IDENTIFICATION
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Ann Arbor, MI 48108
734.662.1075 Ph
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
	03/24/2022	BIDDING AND CONSTRUCTION

REVISIONS

ISSUE: BIDDING AND CONSTRUCTION
ISSUE DATE: 3/24/2022
PROJECT NO: 20-002301.00
DRAWN BY: ECC
CHECKED BY: DJP

SHEET TITLE:
STRUCTURE #1
LEVEL 4 FLOOR PLAN

R-103

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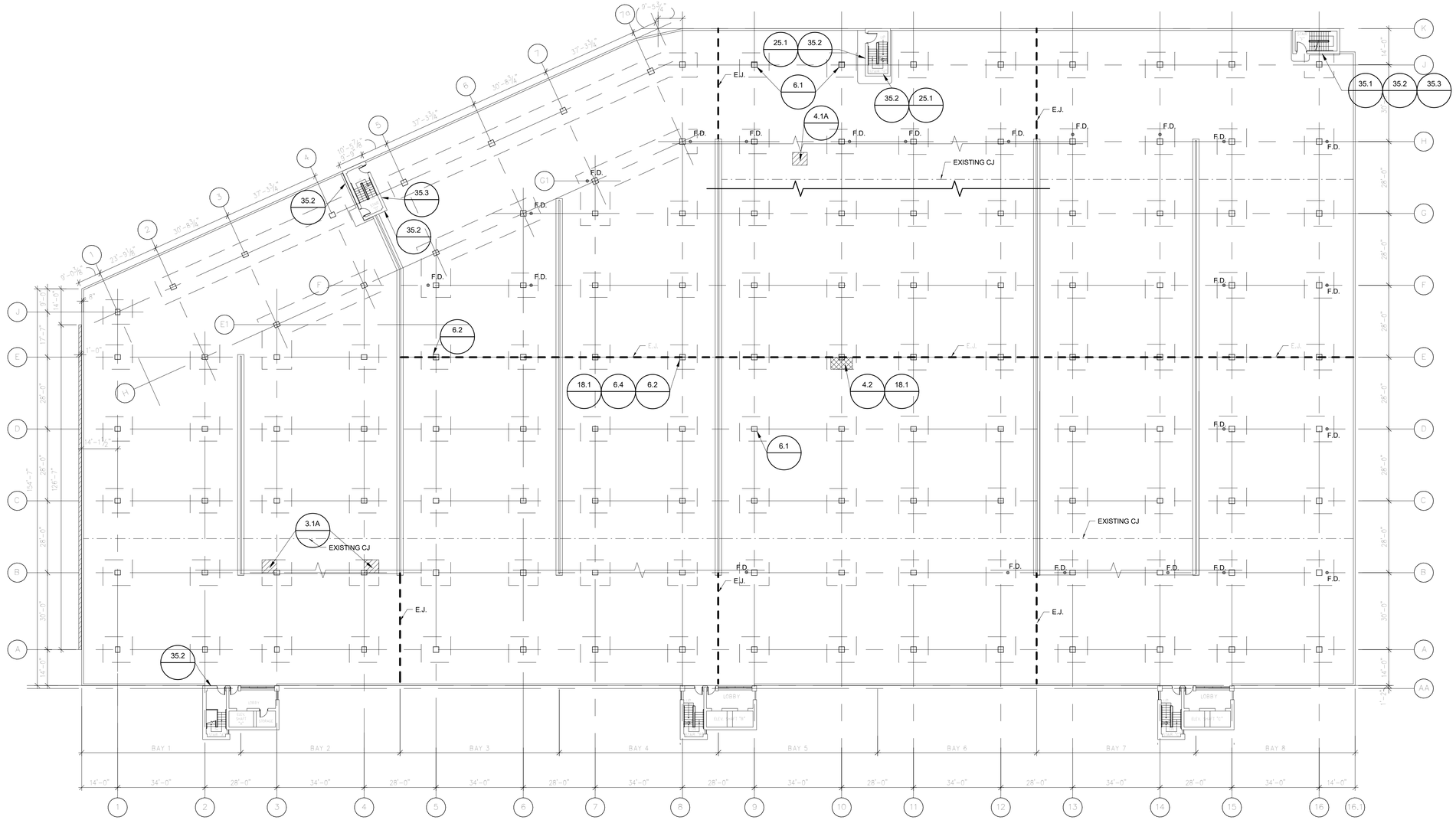

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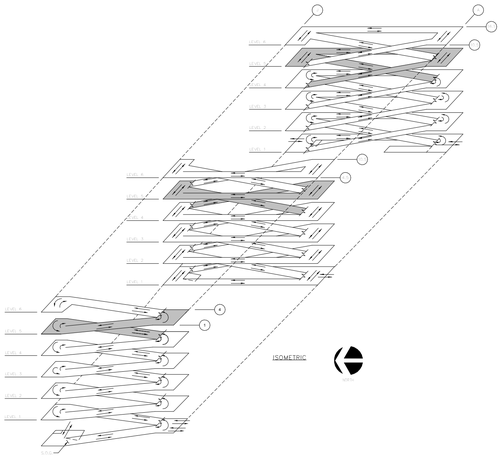

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X.X.X / RX.X
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MARK	DATE	DESCRIPTION
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PROJECT NO:	20-002301.00
DRAWN BY:	ECC
CHECKED BY:	DJP

SHEET TITLE:
STRUCTURE #1
LEVEL 5 FLOOR
PLAN

R-104

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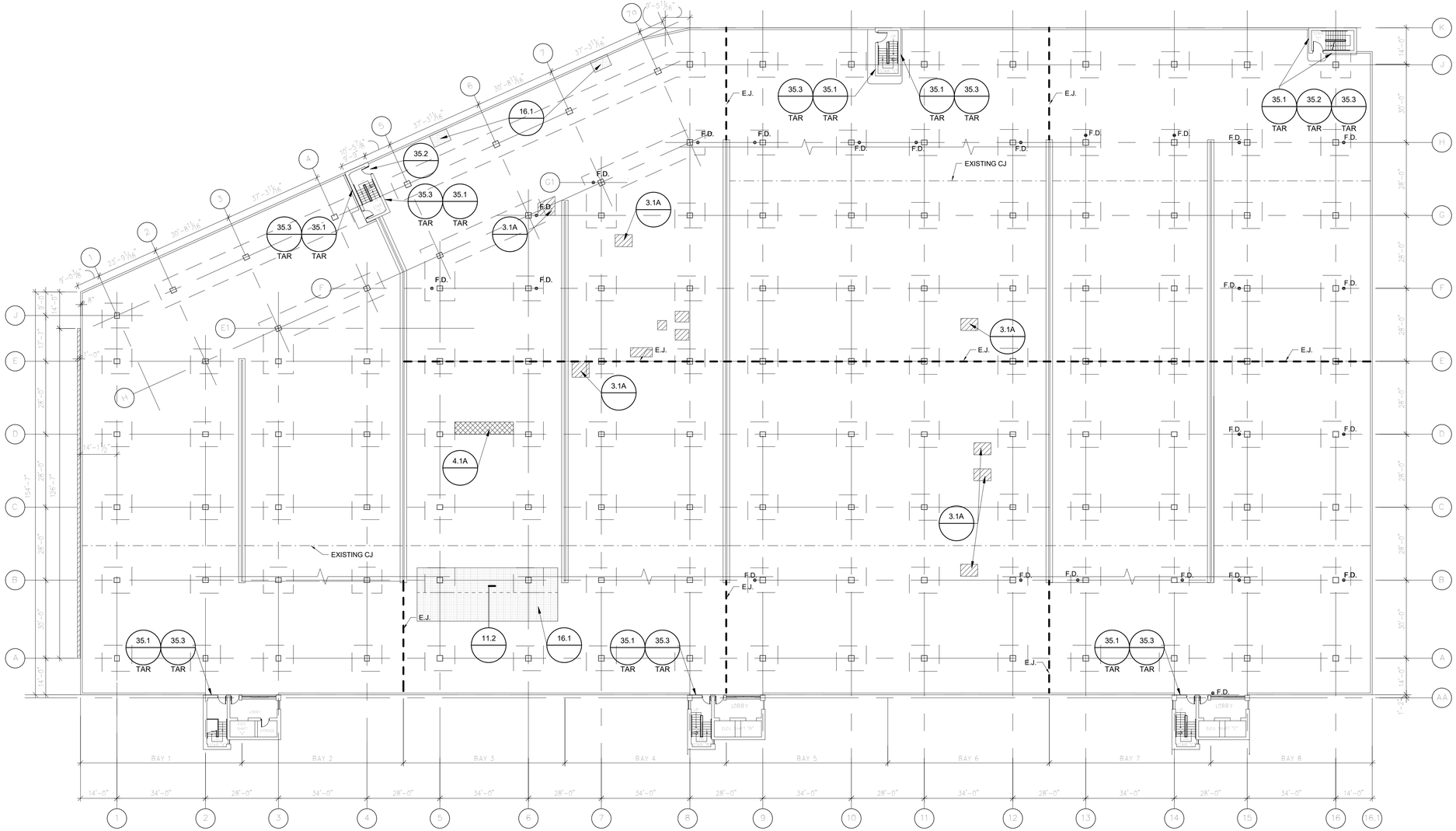
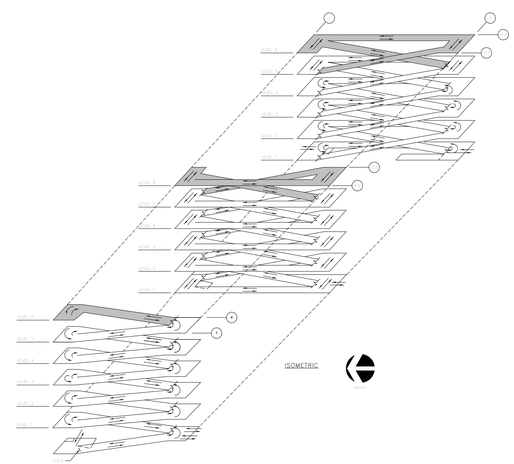


1 PS #1 LEVEL 6



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3. VERIFY STATUS OF EXISTING SECURITY SYSTEM WITH OWNER (I.E. IDENTIFY ANY NON-FUNCTIONAL CAMERAS/COMPONENTS) PRIOR TO START OF REPAIRS. ANY NON-FUNCTIONAL LIGHT FIXTURES SHALL ALSO BE DOCUMENTED PRIOR TO START OF REPAIRS. PERFORM SIMILAR REVIEW AND DOCUMENTATION OF ELEVATORS, PARKING EQUIPMENT, LANDSCAPING, AND OTHER EXISTING CONDITIONS PRIOR TO START OF WORK.
4. INSTALL PROTECTION FOR ELEVATOR TOWERS (WATER PROTECTION, SMOKE ALARM PROTECTION, ETC.) PRIOR TO START OF WORK TO ENSURE ALL DEBRIS/WATER /DUST IS PREVENTED FROM ENTERING ELEVATOR TOWERS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CLEANING AND/OR REPAIRS NECESSARY TO RESTORE ELEVATORS TO CLEAN/FUNCTIONAL CONDITION.
5. RESTORE ALL LANDSCAPING FEATURES TO EXISTING CONDITION UPON COMPLETION OF ALL WORK (INCIDENTAL).
6. MAINTAIN ADA-COMPLIANT PEDESTRIAN ROUTES TO STAIR AND ELEVATOR TOWERS AT ALL TIMES.
7. INSTALL PROTECTION FOR FLOOR DRAINS (FILTERS AND OTHER MEANS OF PROTECTION AS NECESSARY) TO PREVENT DEBRIS/WATER FROM ENTERING EXISTING DRAINAGE SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CLEANING AND/OR REPAIRS NECESSARY TO RESTORE EXISTING DRAINAGE SYSTEM TO EXISTING FUNCTIONAL CONDITION (INCLUDING UNDERGROUND PIPING).
8. LOCATE CEILING REPAIRS (W.I. 4.1A/4.2) IN FIELD WITH ENGINEER. REMOVE ALL LIVE LOADS FROM FLOORS ABOVE AND CLOSE LEVEL BELOW ACTIVE CEILING REPAIR AREAS. W.I.'s 4.1A/4.2 OCCUR ON UNDERSIDE OF LEVEL SHOWN.
9. APPLY NEW TRAFFIC MARKINGS PER W.I. 45.1 IN ALL AREAS THROUGHOUT THE STRUCTURE WHERE EXISTING MARKINGS ARE AFFECTED BY PROJECT. SEE SECTION 020010.
10. INSTALL, MAINTAIN, AND RELOCATE TEMPORARY SIGNAGE/BARRIERS PER W.I. 1.5 PRIOR TO START OF WORK AND AS NEEDED THROUGHOUT THE PROJECT.
11. COORDINATE ALL PROJECT ACTIVITIES WITH OTHER ONGOING ACTIVITIES ON CAMPUS. PROVIDE ADVANCE NOTICE OF CONCRETE POURS, MATERIAL DELIVERIES, ETC. THAT MAY AFFECT OTHER ACTIVITIES ON CAMPUS AND COORDINATE WITH WSU.
12. ALL VEHICLE ENTRY/EXITS MUST REMAIN OPEN AND FUNCTIONAL AT ALL TIMES THAT STRUCTURE IS OPEN. IF CLOSURE IS REQUIRED TO COMPLETE REPAIRS, COORDINATE IN ADVANCE WITH WSU.
13. ANY WORK THAT AFFECTS ACCESS TO ELEVATORS OR STAIR TOWERS SHALL BE COORDINATED IN ADVANCE WITH WSU. CONTRACTOR MAY CLOSE 1 STAIR TOWER AT A TIME WITH ADVANCE APPROVAL.
14. NO DEAD ENDS ALLOWED. PHASE REPAIRS ACCORDINGLY.
15. PROVIDE WSU A MINIMUM OF (5) DAYS ADVANCE NOTICE BEFORE CLOSING PARKING SPACES, OR FOR NOTIFICATION OF VEHICLES TO BE MOVED FROM WORK AREAS.
16. CONTRACTOR SHALL SUBMIT PHASING PLAN FOR OWNER/ENGINEER APPROVAL PRIOR TO START OF WORK.

LEGEND

- W.I. 3.1A, 3.2 - FLOOR REPAIRS
- W.I. 4.1A, 4.2 - CEILING REPAIRS
- W.I. 16.1 TRAFFIC TOPPING - NEW SYSTEM
- W.I. 16.4 TRAFFIC TOPPING - RECOAT

X.X.X — WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS)
RX.X — CLARIFICATION DETAIL NO.
SHEET NUMBER

WORK ITEM / DETAIL IDENTIFICATION
(FOR WORK ITEMS WITH DETAILS)

X.X — WORK ITEM NUMBER (SEE SPECIFICATIONS)

WORK ITEM IDENTIFICATION
(FOR WORK ITEMS WITHOUT DETAILS)

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WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1010 (V) / PB
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
	03/24/2022	BIDDING AND CONSTRUCTION

REVISIONS

ISSUE: BIDDING AND CONSTRUCTION
ISSUE DATE: 3/24/2022
PROJECT NO: 20-002301.00
DRAWN BY: ECC
CHECKED BY: DJP

SHEET TITLE:
STRUCTURE #1
LEVEL 6 FLOOR
PLAN

R-105

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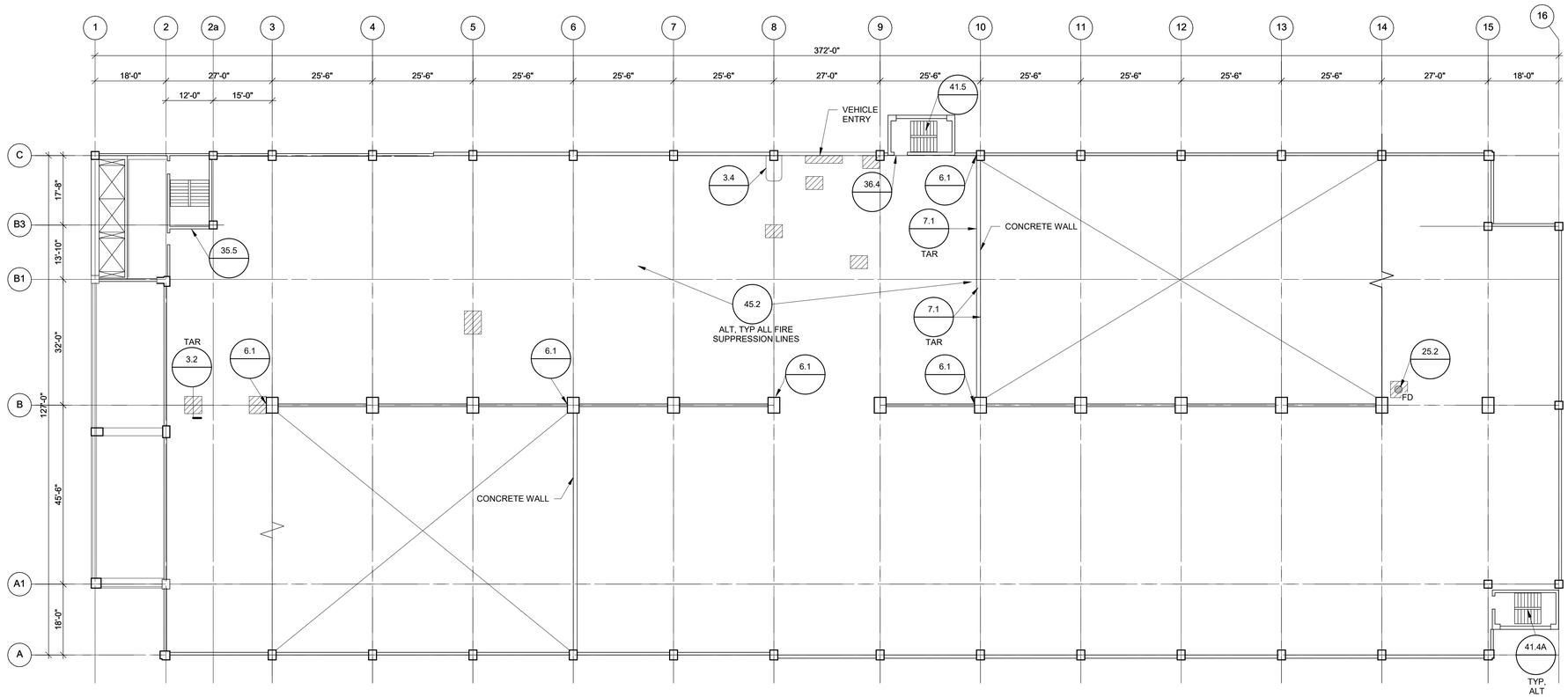
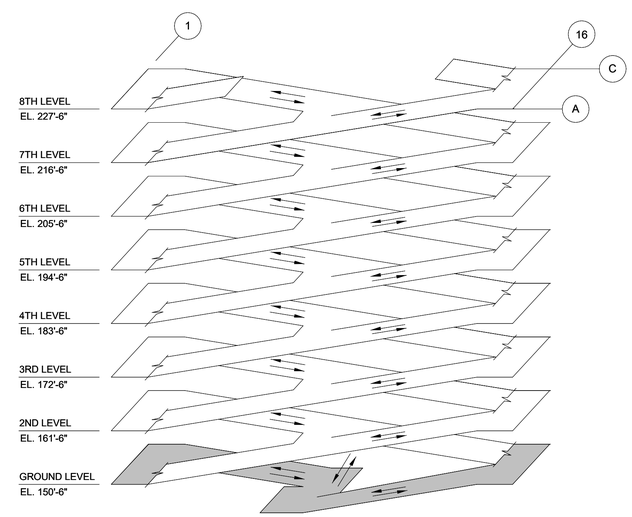


1 PS #4 LEVEL 1 (S.O.G.)



STRUCTURE #4 ISOMETRIC

CAUTION NOTE:
THE FLOOR SLAB HAS POST-TENSIONING TENDONS. THESE TENDONS ARE NEAR THE FLOOR SURFACE AT SPALLS AND DELAMINATIONS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN SAW-CUTTING SO AS NOT TO DAMAGE EXISTING TENDONS OR TENDON SHEATHS. TENDONS MAY BREAK WITH EXPLOSIVE FORCE WHEN CUT. CHIPPING WITH 15 LB HAMMERS SHALL BE USED IN LIEU OF SAW-CUTTING NEAR SHALLOW TENDONS.

SHEET NOTES (◇ = KEYED NOTES)

1. REPRESENTATIVE AND GENERAL REPAIR LOCATIONS SHOWN. ACTUAL EXTENT AND EXACT LOCATIONS SHALL BE IDENTIFIED IN FIELD WITH ENGINEER PRIOR TO START OF WORK.
2. PERFORM SEALANT WORK (WI'S 11.1, 11.2, 11.4 & 11.7) IN TRAFFIC TOPPING REPAIR AREAS AS NEEDED.
3. REPLACE ALL TRAFFIC MARKINGS THROUGHOUT STRUCTURE PER WI 45.1. SEE SECTION 020010 FOR SPECIFIC REQUIREMENTS.
4. REMOVE ALL LOOSE SECTIONS OF OVERHEAD CONCRETE THROUGHOUT ENTIRE STRUCTURE PER WI 4.9 AT START OF PROJECT. INCLUDES EXTERIOR FACADE.
5. WI'S 3.6, 4.1B, 5.4, & 5.5 OCCUR ON UNDERSIDE OF LEVEL SHOWN (TYP). REMAINING WORK ITEMS OCCUR ON TOPSIDE OF LEVEL SHOWN.
6. S.O.G CONTAINS EMBEDDED CONDUIT/ WIRING. LOCATE PRIOR TO SAWCUTTING OR CONCRETE REMOVALS. PROCEED WITH CAUTION TO NOT NICK, CUT, OR DAMAGE.
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8. ALL CONCRETE DEMO & PLACEMENT, AND ALL P/T SYSTEM RELATED WORK AND REPAIRS SHALL BE PERFORMED & SUPERVISED BY FIRM CERTIFIED BY PTI.
9. ◇ RESEAL JOINTS.CRACKS PER W.I. SERIES 11.0 WHEN EXPOSED DURING TRAFFIC TOPPING REMOVAL OPERATIONS.
10. SEE SHEET R-002 FOR PHASING NOTES.

LEGEND

- W.I. SERIES 3.0 - FLOOR SPALL OR DELAMINATION
- W.I. 4.9 OR 5.4 - CEILING / BEAM SPALL OR DELAMINATION
- W.I. SERIES 16.0 - TRAFFIC TOPPING
- EXPANSION JOINT
- FD W.I. 25.2 OR 25.5 - EXISTING FLOOR DRAIN
- SD W.I. 25.4 - NEW SUPPLEMENTAL FLOOR DRAIN

X.X.X / RX.X — WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS); CLARIFICATION DETAIL NO.; SHEET NUMBER

WORK ITEM / DETAIL IDENTIFICATION
(FOR WORK ITEMS WITH DETAILS)

X.X — WORK ITEM NUMBER (SEE SPECIFICATIONS)

WORK ITEM IDENTIFICATION
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WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1010 Ph
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
	03/24/2022	BIDDING AND CONSTRUCTIONON

REVISIONS

ISSUE:	BIDDING AND CONSTRUCTION
ISSUE DATE:	3/24/2022
PROJECT NO:	20-002301.00
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SHEET TITLE:
STRUCTURE #4 LEVEL 1 FLOOR PLAN

R-106

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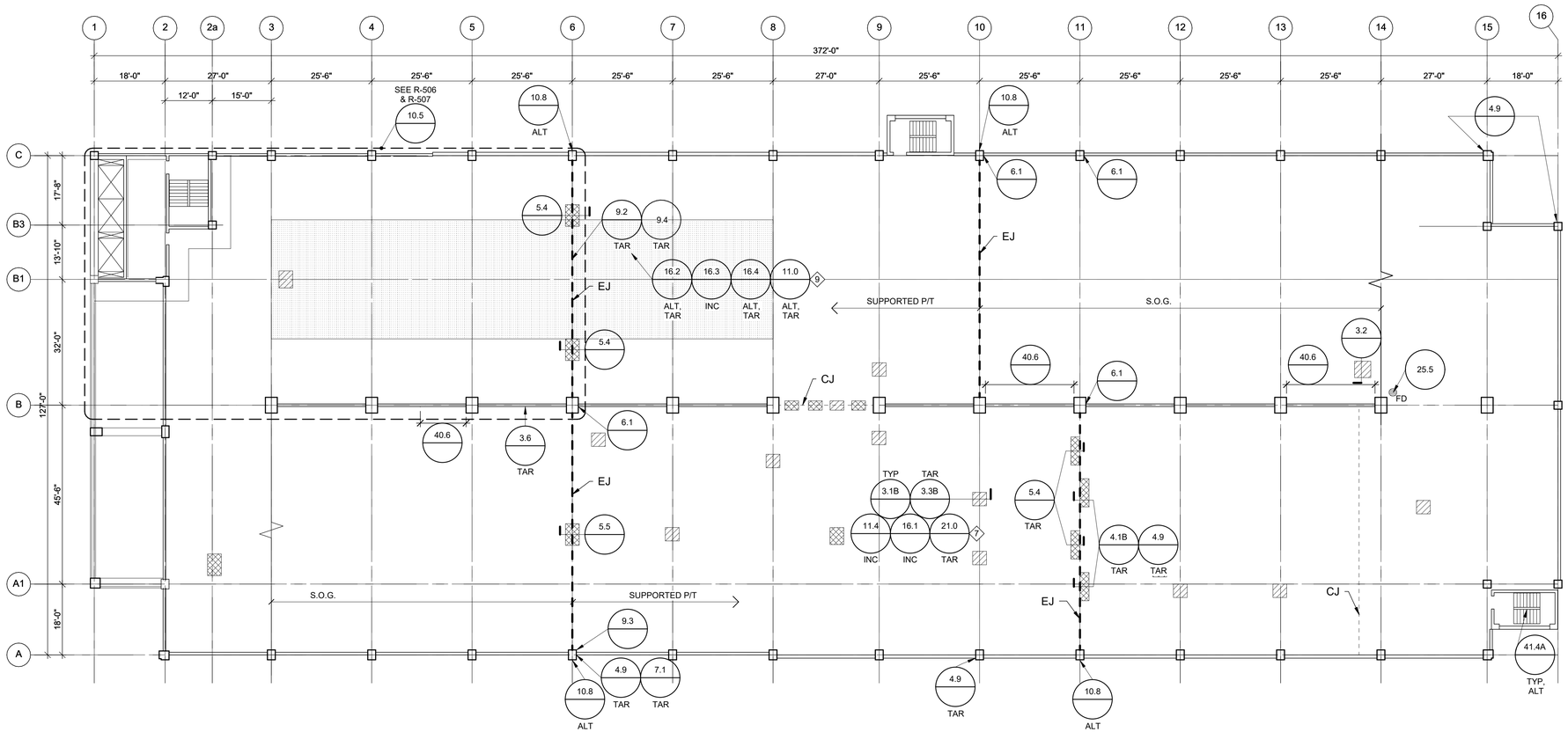

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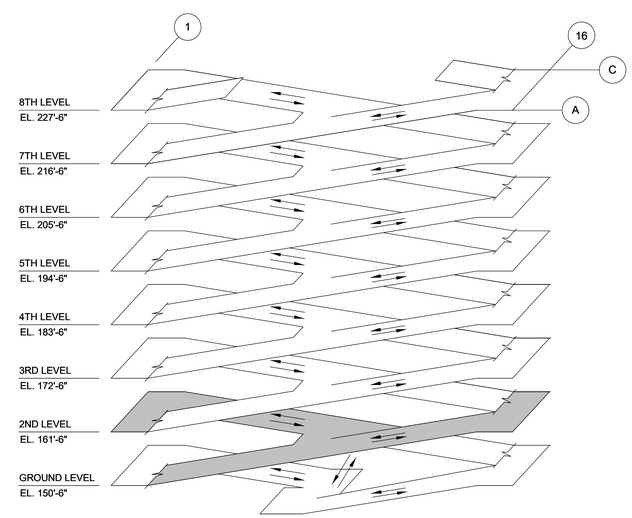

STRUCTURE #4 ISOMETRIC

SHEET NOTES (◇ = KEYED NOTES)

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6. S.O.G CONTAINS EMBEDDED CONDUIT/ WIRING. LOCATE PRIOR TO SAWCUTTING OR CONCRETE REMOVALS. PROCEED WITH CAUTION TO NOT NICK, CUT, OR DAMAGE.
7. ◇ FLOOR SLABS CONTAIN EMBEDDED POST-TENSIONED TENDONS. LOCATE PRIOR TO START OF WORK & PERFORM CONCRETE REMOVALS WITH CAUTION TO NOT DAMAGE. NOTIFY ENGINEER OF ANY P/T SYSTEM DERTERIORATION UNCOVERED. PERFORM P/T REPAIRS AS NEEDED PER W.I. SERIES 21.0.
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9. ◇ RESEAL JOINTS.CRACKS PER W.I. SERIES 11.0 WHEN EXPOSED DURING TRAFFIC TOPPING REMOVAL OPERATIONS.
10. SEE SHEET R-002 FOR PHASING NOTES.

LEGEND

- W.I. SERIES 3.0 - FLOOR SPALL OR DELAMINATION
- W.I. 4.9 OR 5.4 - CEILING / BEAM SPALL OR DELAMINATION
- W.I. SERIES 16.0 - TRAFFIC TOPPING
- EXPANSION JOINT
- FD W.I. 25.2 OR 25.5 - EXISTING FLOOR DRAIN
- SD W.I. 25.4 - NEW SUPPLEMENTAL FLOOR DRAIN

X.X.X / RX.X
- WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS)
- CLARIFICATION DETAIL NO.
- SHEET NUMBER

WORK ITEM / DETAIL IDENTIFICATION
(FOR WORK ITEMS WITH DETAILS)

X.X
- WORK ITEM NUMBER (SEE SPECIFICATIONS)

WORK ITEM IDENTIFICATION
(FOR WORK ITEMS WITHOUT DETAILS)

NORTH

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WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1076 Ph
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
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REVISIONS

ISSUE:	BIDDING AND CONSTRUCTION
ISSUE DATE:	3/24/2022
PROJECT NO:	20-002301.00
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CHECKED BY:	DJP

SHEET TITLE:
STRUCTURE #4 LEVEL 2 FLOOR PLAN

R-107

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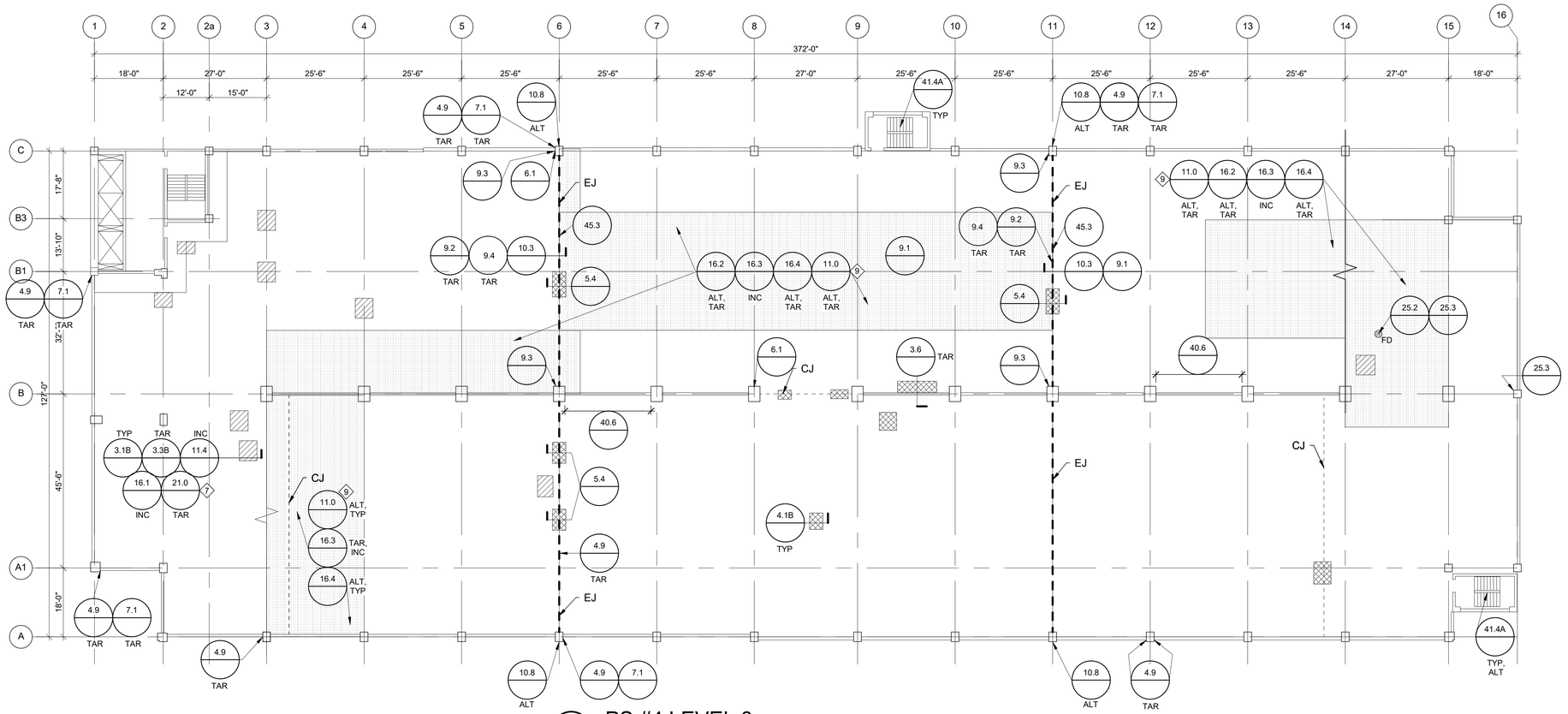
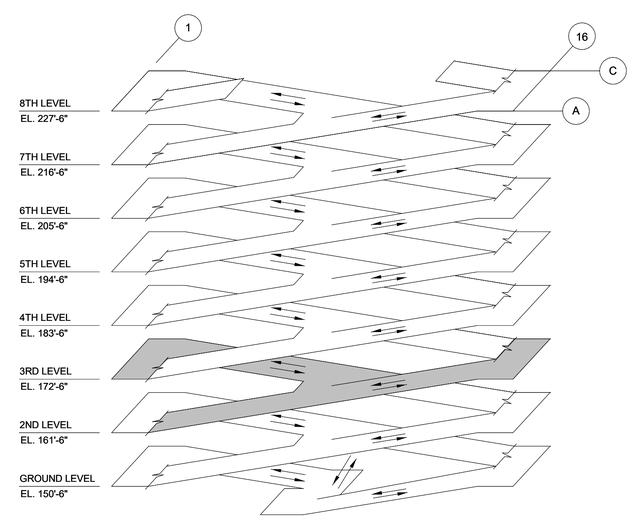


1 PS #4 LEVEL 3



STRUCTURE #4 ISOMETRIC

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SHEET NOTES (◇ = KEYED NOTES)

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2. PERFORM SEALANT WORK (WI'S 11.1, 11.2, 11.4 & 11.7) IN TRAFFIC TOPPING REPAIR AREAS AS NEEDED.
3. REPLACE ALL TRAFFIC MARKINGS THROUGHOUT STRUCTURE PER WI 45.1. SEE SECTION 020010 FOR SPECIFIC REQUIREMENTS.
4. REMOVE ALL LOOSE SECTIONS OF OVERHEAD CONCRETE THROUGHOUT ENTIRE STRUCTURE PER WI 4.9 AT START OF PROJECT. INCLUDES EXTERIOR FACADE.
5. WI'S 3.6, 4.1B, 5.4, & 5.5 OCCUR ON UNDERSIDE OF LEVEL SHOWN (TYP). REMAINING WORK ITEMS OCCUR ON TOPSIDE OF LEVEL SHOWN.
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9. RESEAL JOINTS.CRACKS PER W.I. SERIES 11.0 WHEN EXPOSED DURING TRAFFIC TOPPING REMOVAL OPERATIONS.
10. SEE SHEET R-002 FOR PHASING NOTES.

LEGEND

- W.I. SERIES 3.0 - FLOOR SPALL OR DELAMINATION
- W.I. 4.9 OR 5.4 - CEILING / BEAM SPALL OR DELAMINATION
- W.I. SERIES 16.0 - TRAFFIC TOPPING
- EXPANSION JOINT
- FD W.I. 25.2 OR 25.5 - EXISTING FLOOR DRAIN
- SD W.I. 25.4 - NEW SUPPLEMENTAL FLOOR DRAIN

X.X.X — WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS)
RX.X — CLARIFICATION DETAIL NO.
SHEET NUMBER

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WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1870 P/F
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
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REVISIONS

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ISSUE DATE:	3/24/2022
PROJECT NO:	20-002301.00
DRAWN BY:	ECC
CHECKED BY:	DJP

SHEET TITLE:
STRUCTURE #4 LEVEL 3 FLOOR PLAN

R-108

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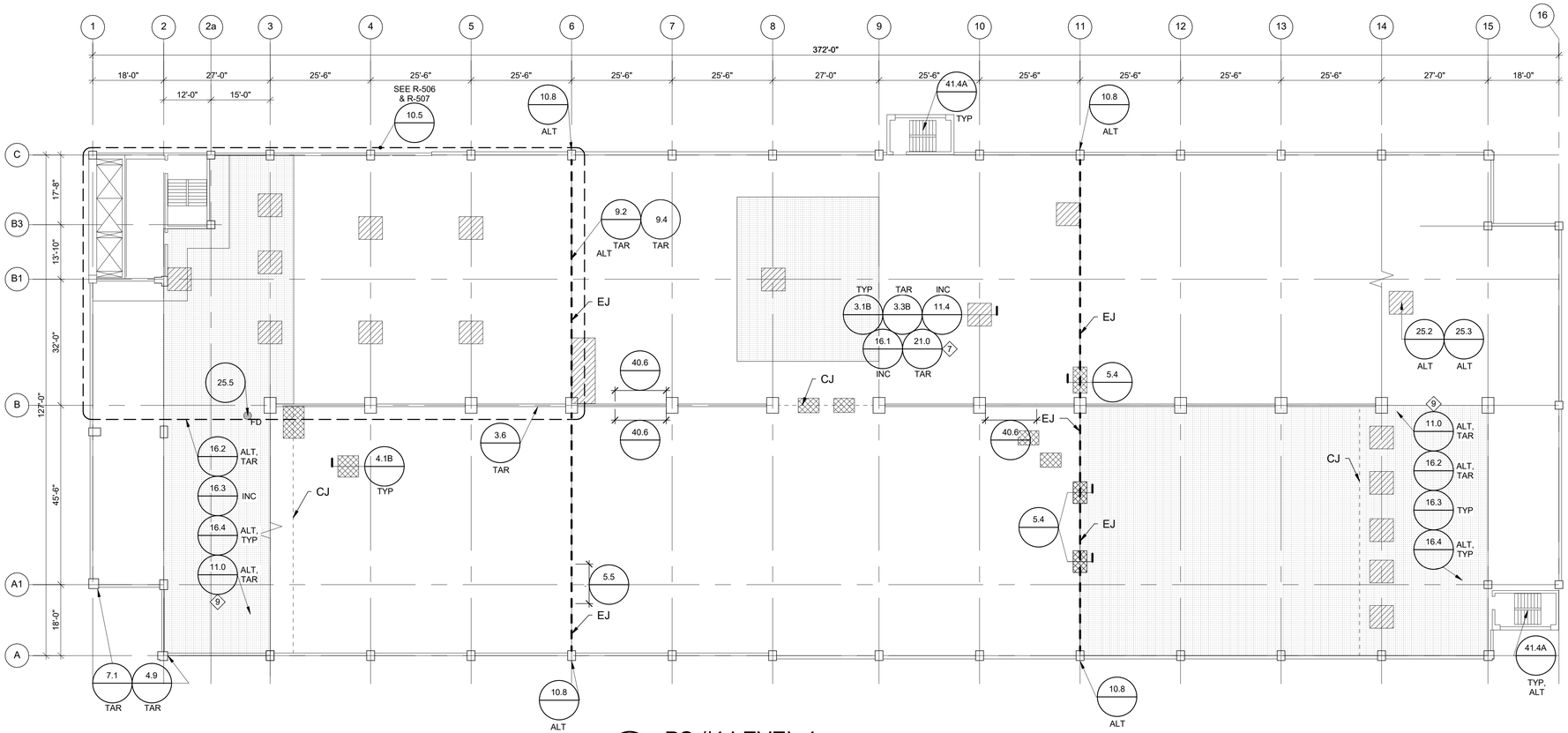

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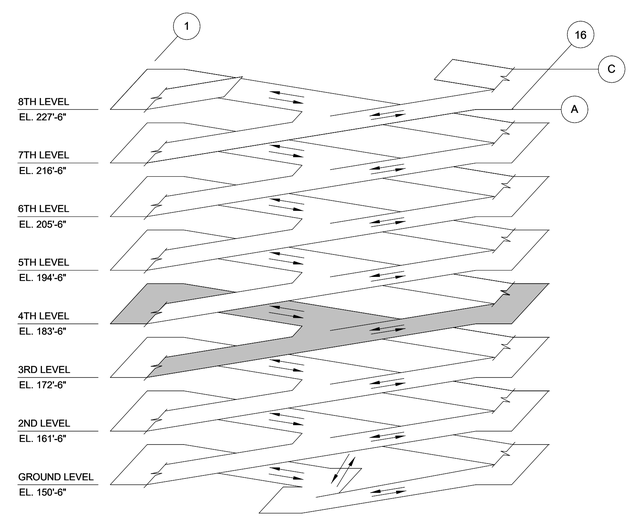

STRUCTURE #4 ISOMETRIC

CAUTION NOTE:
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4. REMOVE ALL LOOSE SECTIONS OF OVERHEAD CONCRETE THROUGHOUT ENTIRE STRUCTURE PER WI 4.9 AT START OF PROJECT. INCLUDES EXTERIOR FACADE.
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9◇ RESEAL JOINTS.CRACKS PER W.I. SERIES 11.0 WHEN EXPOSED DURING TRAFFIC TOPPING REMOVAL OPERATIONS.

10. SEE SHEET R-002 FOR PHASING NOTES.

LEGEND

- W.I. SERIES 3.0 - FLOOR SPALL OR DELAMINATION
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WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1010 (V) PH
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
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ISSUE: BIDDING AND CONSTRUCTION
ISSUE DATE: 3/24/2022
PROJECT NO: 20-002301.00
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CHECKED BY: DJP

SHEET TITLE:
STRUCTURE #4 LEVEL 4 FLOOR PLAN

R-109

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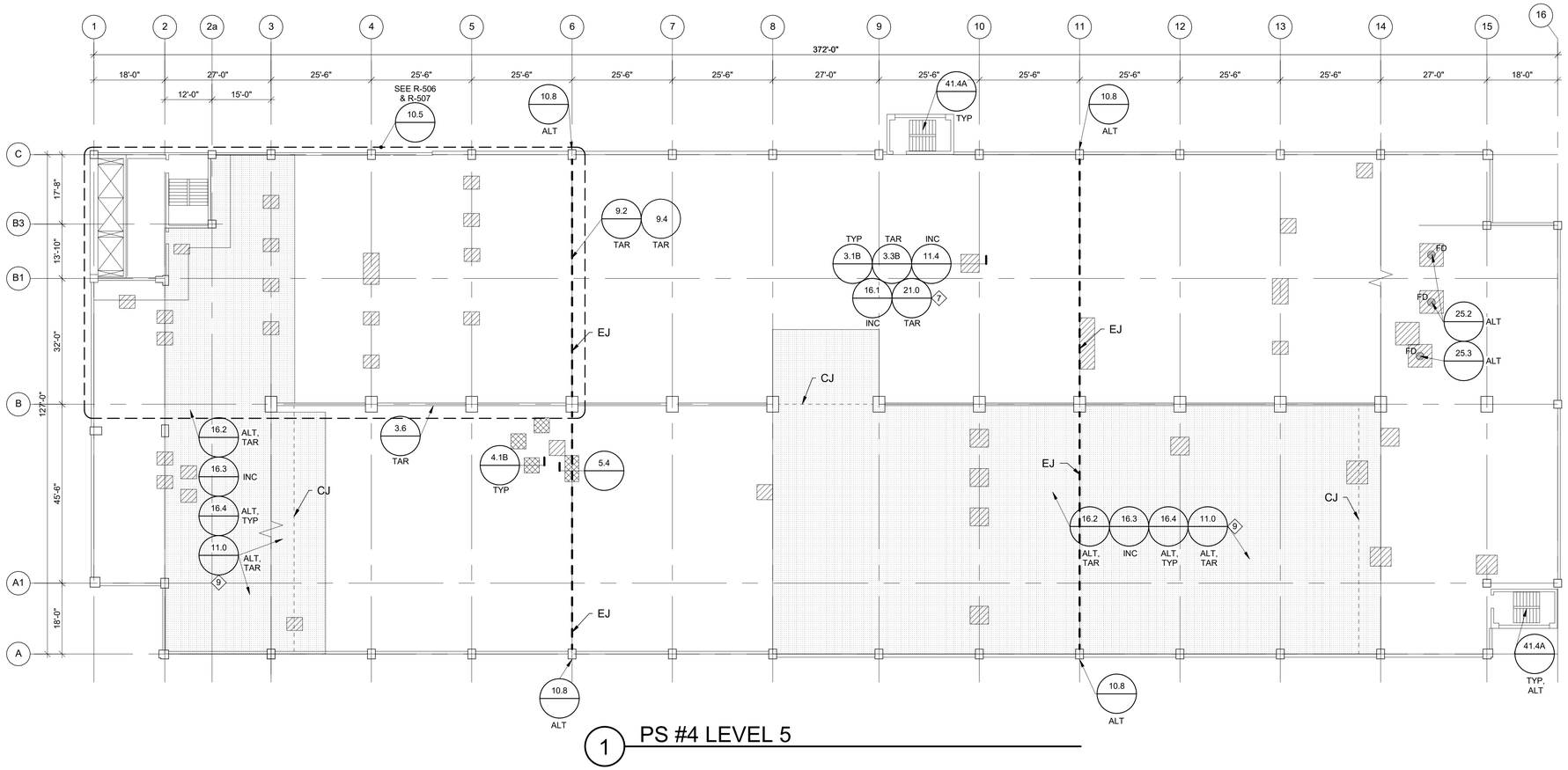
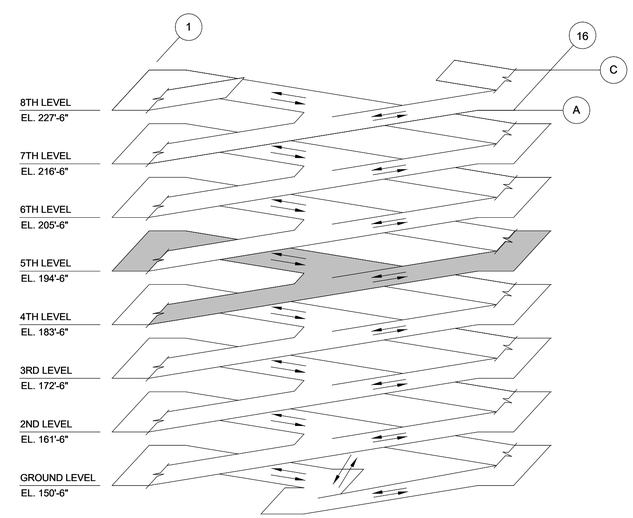


1 PS #4 LEVEL 5



STRUCTURE #4 ISOMETRIC

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4. REMOVE ALL LOOSE SECTIONS OF OVERHEAD CONCRETE THROUGHOUT ENTIRE STRUCTURE PER WI 4.9 AT START OF PROJECT. INCLUDES EXTERIOR FACADE.
5. W/'S 3.6, 4.1B, 5.4, & 5.5 OCCUR ON UNDERSIDE OF LEVEL SHOWN (TYP). REMAINING WORK ITEMS OCCUR ON TOPSIDE OF LEVEL SHOWN.
6. S.O.G CONTAINS EMBEDDED CONDUIT/ WIRING. LOCATE PRIOR TO SAWCUTTING OR CONCRETE REMOVALS. PROCEED WITH CAUTION TO NOT NICK, CUT, OR DAMAGE.
7. ◇ FLOOR SLABS CONTAIN EMBEDDED POST-TENSIONED TENDONS. LOCATE PRIOR TO START OF WORK & PERFORM CONCRETE REMOVALS WITH CAUTION TO NOT DAMAGE. NOTIFY ENGINEER OF ANY P/T SYSTEM DERTERIORATION UNCOVERED. PERFORM P/T REPAIRS AS NEEDED PER W.I. SERIES 21.0.
8. ALL CONCRETE DEMO & PLACEMENT, AND ALL P/T SYSTEM RELATED WORK AND REPAIRS SHALL BE PERFORMED & SUPERVISED BY FIRM CERTIFIED BY PTI.
9. ◇ RESEAL JOINTS.CRACKS PER W.I. SERIES 11.0 WHEN EXPOSED DURING TRAFFIC TOPPING REMOVAL OPERATIONS.
10. SEE SHEET R-002 FOR PHASING NOTES.

LEGEND

- W.I. SERIES 3.0 - FLOOR SPALL OR DELAMINATION
- W.I. 4.9 OR 5.4 - CEILING / BEAM SPALL OR DELAMINATION
- W.I. SERIES 16.0 - TRAFFIC TOPPING
- EXPANSION JOINT
- FD W.I. 25.2 OR 25.5 - EXISTING FLOOR DRAIN
- SD W.I. 25.4 - NEW SUPPLEMENTAL FLOOR DRAIN
- X.X.X / RX.X — WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS); CLARIFICATION DETAIL NO.; SHEET NUMBER

WORK ITEM / DETAIL IDENTIFICATION
(FOR WORK ITEMS WITH DETAILS)

- X.X — WORK ITEM NUMBER (SEE SPECIFICATIONS)

WORK ITEM IDENTIFICATION
(FOR WORK ITEMS WITHOUT DETAILS)

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WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1076 PH
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

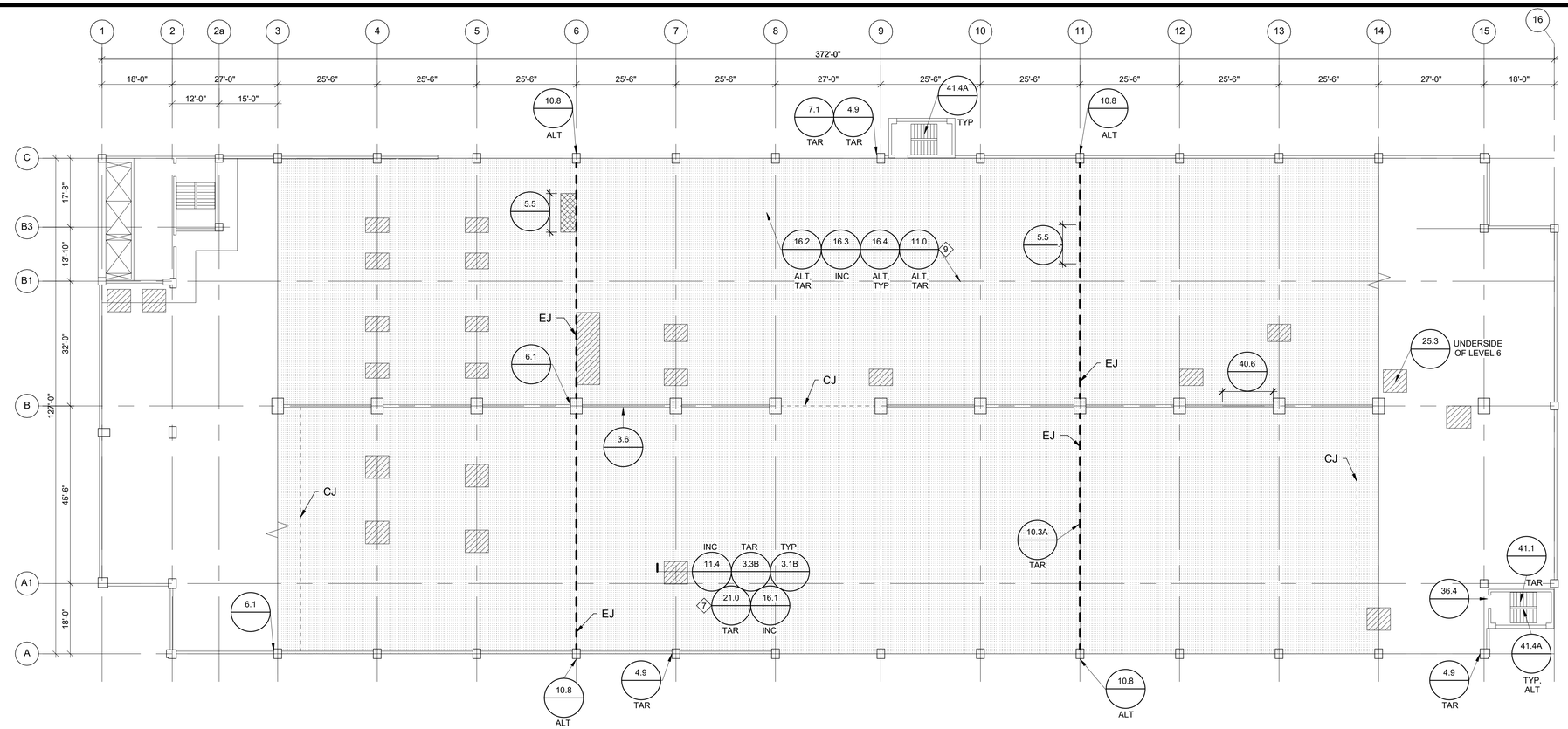
MARK	DATE	DESCRIPTION
	03/24/2022	BIDDING AND CONSTRUCTIONON

REVISIONS

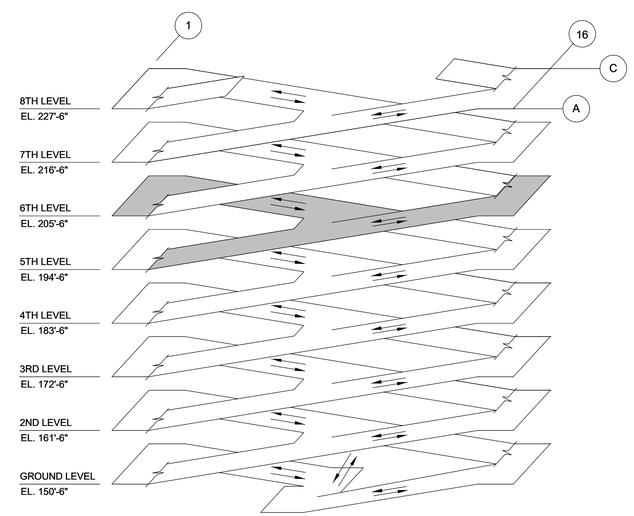
ISSUE: BIDDING AND CONSTRUCTION
ISSUE DATE: 3/24/2022
PROJECT NO: 20-002301.00
DRAWN BY: ECC
CHECKED BY: DJP

SHEET TITLE:
STRUCTURE #4 LEVEL 5 FLOOR PLAN

R-110



1 PS #4 LEVEL 6



STRUCTURE #4 ISOMETRIC

SHEET NOTES (◇ = KEYED NOTES)

1. REPRESENTATIVE AND GENERAL REPAIR LOCATIONS SHOWN. ACTUAL EXTENT AND EXACT LOCATIONS SHALL BE IDENTIFIED IN FIELD WITH ENGINEER PRIOR TO START OF WORK.
2. PERFORM SEALANT WORK (WI'S 11.1, 11.2, 11.4 & 11.7) IN TRAFFIC TOPPING REPAIR AREAS AS NEEDED.
3. REPLACE ALL TRAFFIC MARKINGS THROUGHOUT STRUCTURE PER WI 45.1. SEE SECTION 020010 FOR SPECIFIC REQUIREMENTS.
4. REMOVE ALL LOOSE SECTIONS OF OVERHEAD CONCRETE THROUGHOUT ENTIRE STRUCTURE PER WI 4.9 AT START OF PROJECT. INCLUDES EXTERIOR FACADE.
5. WI'S 3.6, 4.1B, 5.4, & 5.5 OCCUR ON UNDERSIDE OF LEVEL SHOWN (TYP). REMAINING WORK ITEMS OCCUR ON TOPSIDE OF LEVEL SHOWN.
6. S.O.G CONTAINS EMBEDDED CONDUIT/ WIRING. LOCATE PRIOR TO SAWCUTTING OR CONCRETE REMOVALS. PROCEED WITH CAUTION TO NOT NICK, CUT, OR DAMAGE.
7. ◇ FLOOR SLABS CONTAIN EMBEDDED POST-TENSIONED TENDONS. LOCATE PRIOR TO START OF WORK & PERFORM CONCRETE REMOVALS WITH CAUTION TO NOT DAMAGE. NOTIFY ENGINEER OF ANY P/T SYSTEM DERTERIORATION UNCOVERED. PERFORM P/T REPAIRS AS NEEDED PER W.I. SERIES 21.0.
8. ALL CONCRETE DEMO & PLACEMENT, AND ALL P/T SYSTEM RELATED WORK AND REPAIRS SHALL BE PERFORMED & SUPERVISED BY FIRM CERTIFIED BY PTI.
9. ◇ RESEAL JOINTS.CRACKS PER W.I. SERIES 11.0 WHEN EXPOSED DURING TRAFFIC TOPPING REMOVAL OPERATIONS.
10. SEE SHEET R-002 FOR PHASING NOTES.

LEGEND

- W.I. SERIES 3.0 - FLOOR SPALL OR DELAMINATION
- W.I. 4.9 OR 5.4 - CEILING / BEAM SPALL OR DELAMINATION
- W.I. SERIES 16.0 - TRAFFIC TOPPING
- EXPANSION JOINT
- FD W.I. 25.2 OR 25.5 - EXISTING FLOOR DRAIN
- SD W.I. 25.4 - NEW SUPPLEMENTAL FLOOR DRAIN

X.X.X — WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS)
RX.X — CLARIFICATION DETAIL NO.
SHEET NUMBER

WORK ITEM / DETAIL IDENTIFICATION
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X.X — WORK ITEM NUMBER (SEE SPECIFICATIONS)

WORK ITEM IDENTIFICATION
(FOR WORK ITEMS WITHOUT DETAILS)

NORTH

CAUTION NOTE:
THE FLOOR SLAB HAS POST-TENSIONING TENDONS. THESE TENDONS ARE NEAR THE FLOOR SURFACE AT SPALLS AND DELAMINATIONS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN SAW-CUTTING SO AS NOT TO DAMAGE EXISTING TENDONS OR TENDON SHEATHS. TENDONS MAY BREAK WITH EXPLOSIVE FORCE WHEN CUT. CHIPPING WITH 15 LB HAMMERS SHALL BE USED IN LIEU OF SAW-CUTTING NEAR SHALLOW TENDONS.

WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1010 Ph
www.walkerconsultants.com

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2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
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REVISIONS

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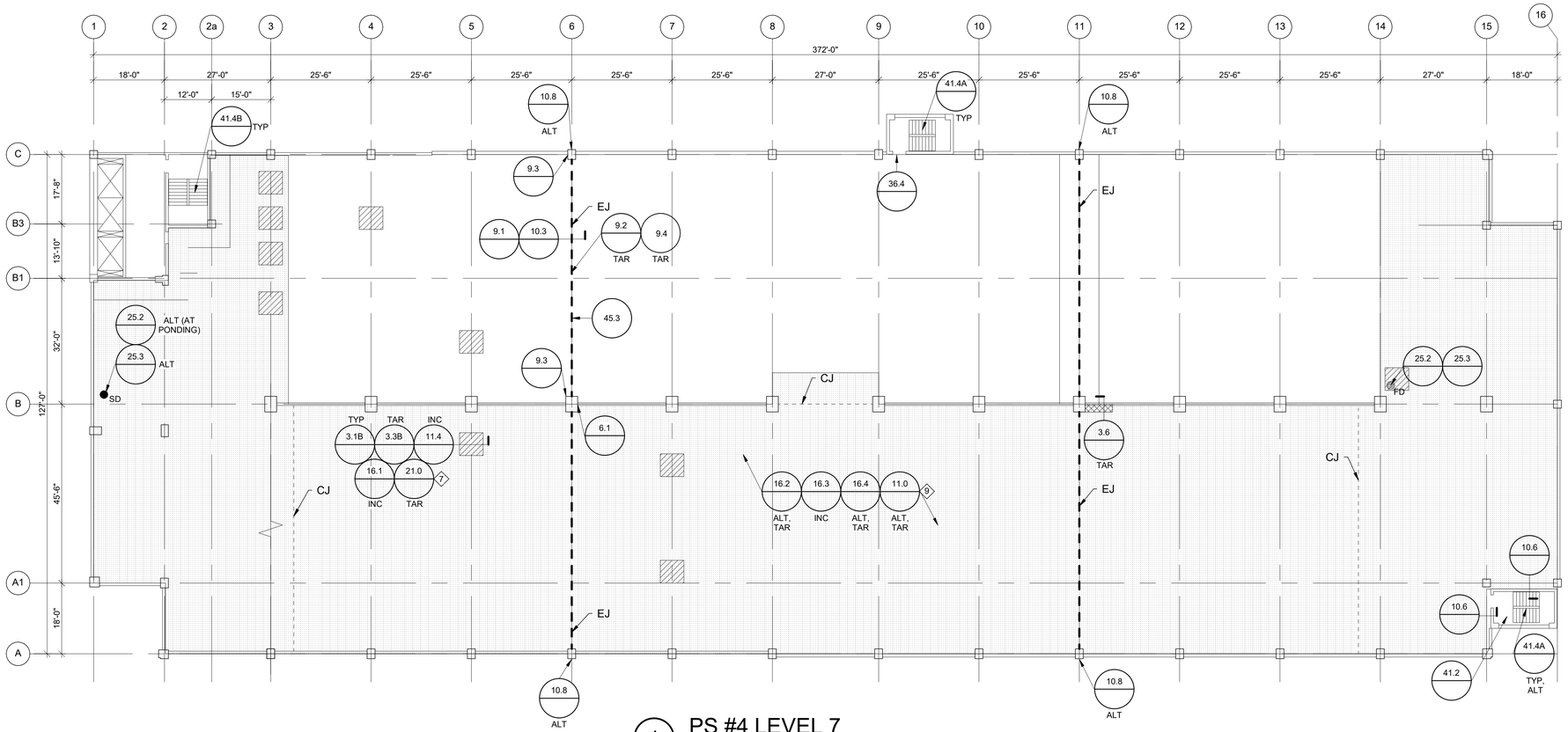
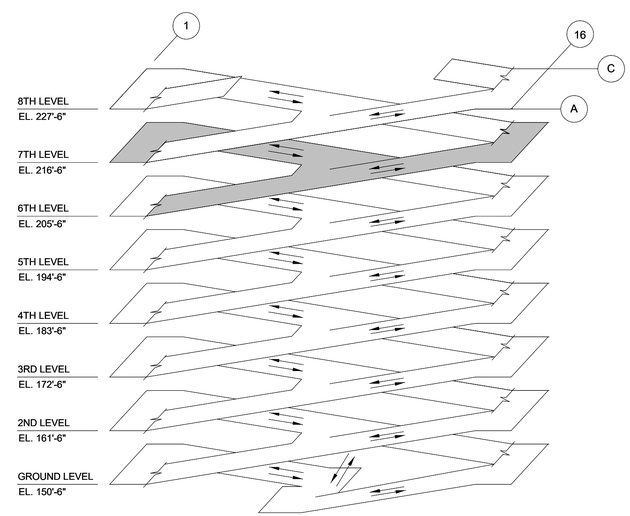
DRAWN BY:	ECC
CHECKED BY:	DJP

SHEET TITLE:
STRUCTURE #4 LEVEL 6 FLOOR PLAN

R-111



1 PS #4 LEVEL 7



STRUCTURE #4 ISOMETRIC

CAUTION NOTE:
THE FLOOR SLAB HAS POST-TENSIONING TENDONS. THESE TENDONS ARE NEAR THE FLOOR SURFACE AT SPALLS AND DELAMINATIONS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN SAW-CUTTING SO AS NOT TO DAMAGE EXISTING TENDONS OR TENDON SHEATHS. TENDONS MAY BREAK WITH EXPLOSIVE FORCE WHEN CUT. CHIPPING WITH 15 LB HAMMERS SHALL BE USED IN LIEU OF SAW-CUTTING NEAR SHALLOW TENDONS.

SHEET NOTES (◇ = KEYED NOTES)

1. REPRESENTATIVE AND GENERAL REPAIR LOCATIONS SHOWN. ACTUAL EXTENT AND EXACT LOCATIONS SHALL BE IDENTIFIED IN FIELD WITH ENGINEER PRIOR TO START OF WORK.
2. PERFORM SEALANT WORK (WI'S 11.1, 11.2, 11.4 & 11.7) IN TRAFFIC TOPPING REPAIR AREAS AS NEEDED.
3. REPLACE ALL TRAFFIC MARKINGS THROUGHOUT STRUCTURE PER WI 45.1. SEE SECTION 020010 FOR SPECIFIC REQUIREMENTS.
4. REMOVE ALL LOOSE SECTIONS OF OVERHEAD CONCRETE THROUGHOUT ENTIRE STRUCTURE PER WI 4.9 AT START OF PROJECT. INCLUDES EXTERIOR FACADE.
5. WI'S 3.6, 4.1B, 5.4, & 5.5 OCCUR ON UNDERSIDE OF LEVEL SHOWN (TYP). REMAINING WORK ITEMS OCCUR ON TOPSIDE OF LEVEL SHOWN.
6. S.O.G CONTAINS EMBEDDED CONDUIT/ WIRING. LOCATE PRIOR TO SAWCUTTING OR CONCRETE REMOVALS. PROCEED WITH CAUTION TO NOT NICK, CUT, OR DAMAGE.
7. ◇ FLOOR SLABS CONTAIN EMBEDDED POST-TENSIONED TENDONS. LOCATE PRIOR TO START OF WORK & PERFORM CONCRETE REMOVALS WITH CAUTION TO NOT DAMAGE. NOTIFY ENGINEER OF ANY P/T SYSTEM DERTERIORATION UNCOVERED. PERFORM P/T REPAIRS AS NEEDED PER W.I. SERIES 21.0.
8. ALL CONCRETE DEMO & PLACEMENT, AND ALL P/T SYSTEM RELATED WORK AND REPAIRS SHALL BE PERFORMED & SUPERVISED BY FIRM CERTIFIED BY P'TI.
9. ◇ RESEAL JOINTS.CRACKS PER W.I. SERIES 11.0 WHEN EXPOSED DURING TRAFFIC TOPPING REMOVAL OPERATIONS.
10. SEE SHEET R-002 FOR PHASING NOTES.

LEGEND

- W.I. SERIES 3.0 - FLOOR SPALL OR DELAMINATION
- W.I. 4.9 OR 5.4 - CEILING / BEAM SPALL OR DELAMINATION
- W.I. SERIES 16.0 - TRAFFIC TOPPING
- EXPANSION JOINT
- FD W.I. 25.2 OR 25.5 - EXISTING FLOOR DRAIN
- SD W.I. 25.4 - NEW SUPPLEMENTAL FLOOR DRAIN

X.X.X — WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS)
RX.X — CLARIFICATION DETAIL NO.
SHEET NUMBER

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(FOR WORK ITEMS WITH DETAILS)

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WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1075 Ph
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
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DETROIT, MICHIGAN

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REVISIONS

ISSUE: BIDDING AND CONSTRUCTION
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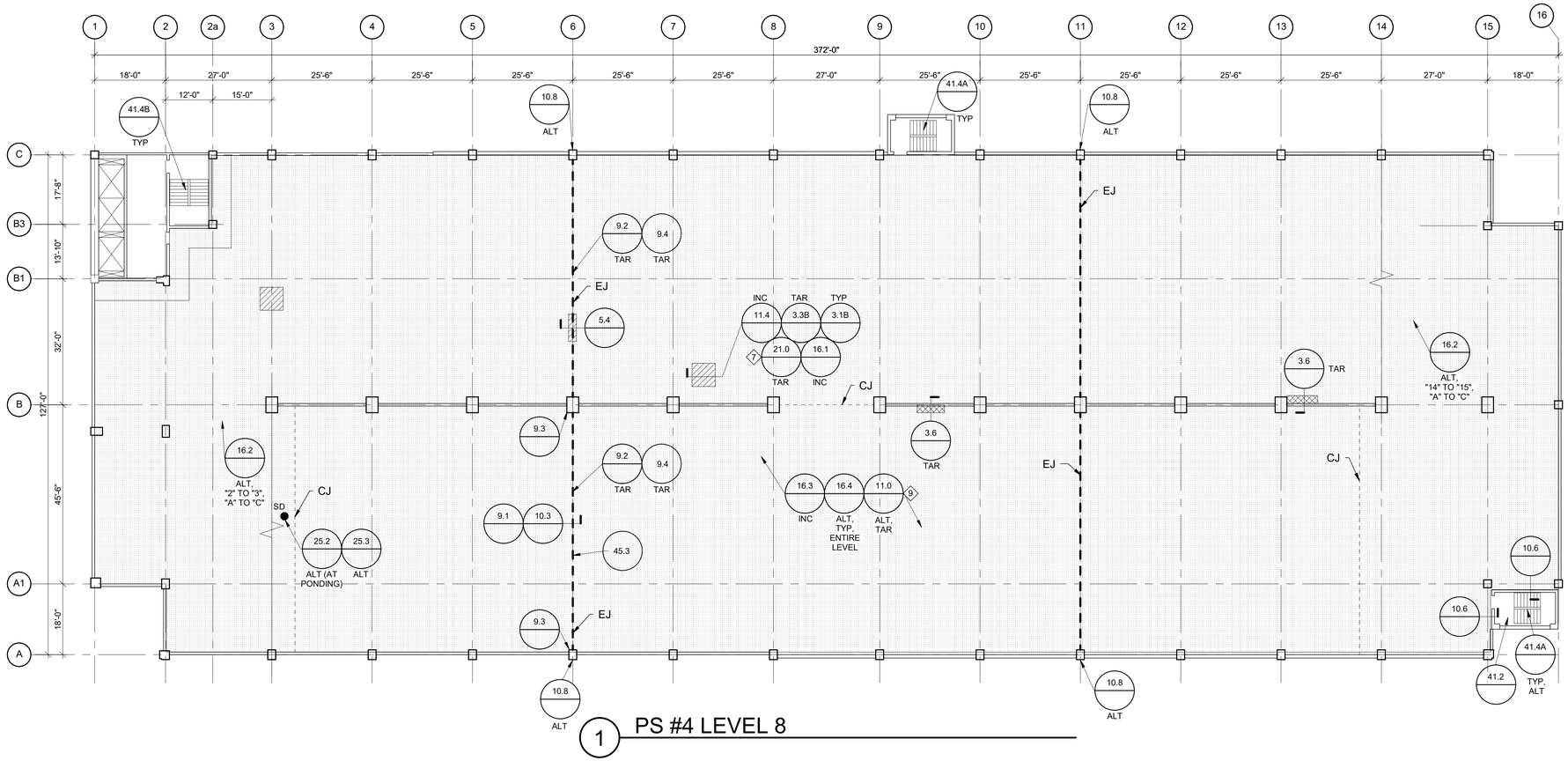
PROJECT NO: 20-002301.00
DRAWN BY: ECC
CHECKED BY: DJP

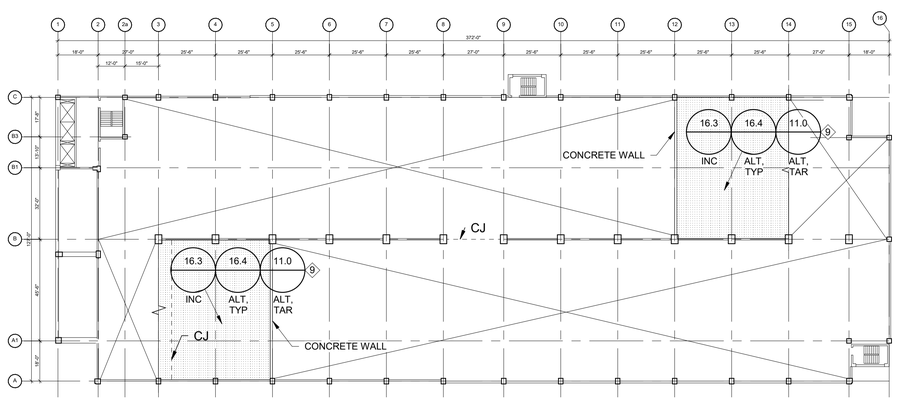
SHEET TITLE:
STRUCTURE #4 LEVEL 7 FLOOR PLAN

R-112

3/24/2022 2:51:16 PM J:\20-002301-00-WSU_PS_#1_2022_Rpts\Drawings\2022 WSU RENOVATIONS.rvt

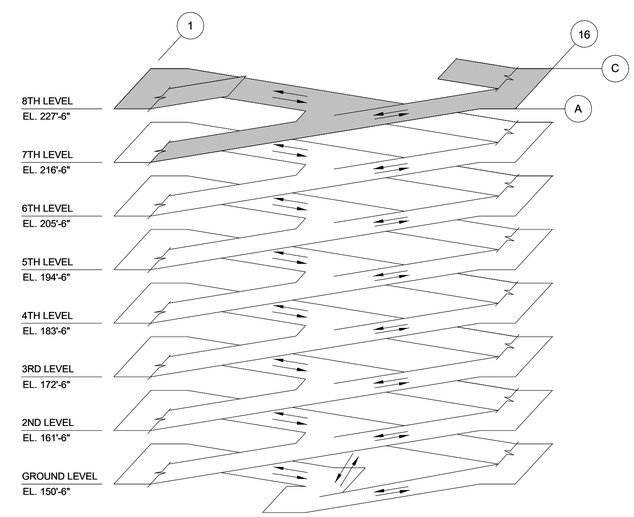


1 PS #4 LEVEL 8



2 PS #4 LEVEL 9

CAUTION NOTE:
THE FLOOR SLAB HAS POST-TENSIONING TENDONS. THESE TENDONS ARE NEAR THE FLOOR SURFACE AT SPALLS AND DELAMINATIONS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN SAW-CUTTING SO AS NOT TO DAMAGE EXISTING TENDONS OR TENDON SHEATHS. TENDONS MAY BREAK WITH EXPLOSIVE FORCE WHEN CUT. CHIPPING WITH 15 LB HAMMERS SHALL BE USED IN LIEU OF SAW-CUTTING NEAR SHALLOW TENDONS.



STRUCTURE #4 ISOMETRIC

SHEET NOTES (◇ = KEYED NOTES)

1. REPRESENTATIVE AND GENERAL REPAIR LOCATIONS SHOWN. ACTUAL EXTENT AND EXACT LOCATIONS SHALL BE IDENTIFIED IN FIELD WITH ENGINEER PRIOR TO START OF WORK.
2. PERFORM SEALANT WORK (WI'S 11.1, 11.2, 11.4 & 11.7) IN TRAFFIC TOPPING REPAIR AREAS AS NEEDED.
3. REPLACE ALL TRAFFIC MARKINGS THROUGHOUT STRUCTURE PER WI 45.1. SEE SECTION 020010 FOR SPECIFIC REQUIREMENTS.
4. REMOVE ALL LOOSE SECTIONS OF OVERHEAD CONCRETE THROUGHOUT ENTIRE STRUCTURE PER WI 4.9 AT START OF PROJECT. INCLUDES EXTERIOR FACADE.
5. WI'S 3.6, 4.1B, 5.4, & 5.5 OCCUR ON UNDERSIDE OF LEVEL SHOWN (TYP). REMAINING WORK ITEMS OCCUR ON TOPSIDE OF LEVEL SHOWN.
6. S.O.G CONTAINS EMBEDDED CONDUIT/ WIRING. LOCATE PRIOR TO SAWCUTTING OR CONCRETE REMOVALS. PROCEED WITH CAUTION TO NOT NICK, CUT, OR DAMAGE.
7. ◇ FLOOR SLABS CONTAIN EMBEDDED POST-TENSIONED TENDONS. LOCATE PRIOR TO START OF WORK & PERFORM CONCRETE REMOVALS WITH CAUTION TO NOT DAMAGE. NOTIFY ENGINEER OF ANY P/T SYSTEM DERTERIORATION UNCOVERED. PERFORM P/T REPAIRS AS NEEDED PER W.I. SERIES 21.0.
8. ALL CONCRETE DEMO & PLACEMENT, AND ALL P/T SYSTEM RELATED WORK AND REPAIRS SHALL BE PERFORMED & SUPERVISED BY FIRM CERTIFIED BY PTI.
9. ◇ RESEAL JOINTS.CRACKS PER W.I. SERIES 11.0 WHEN EXPOSED DURING TRAFFIC TOPPING REMOVAL OPERATIONS.
10. SEE SHEET R-002 FOR PHASING NOTES.

LEGEND

- W.I. SERIES 3.0 - FLOOR SPALL OR DELAMINATION
- W.I. 4.9 OR 5.4 - CEILING / BEAM SPALL OR DELAMINATION
- W.I. SERIES 16.0 - TRAFFIC TOPPING
- EXPANSION JOINT
- FD W.I. 25.2 OR 25.5 - EXISTING FLOOR DRAIN
- SD W.I. 25.4 - NEW SUPPLEMENTAL FLOOR DRAIN

WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS)
X.X.X / RX.X
CLARIFICATION DETAIL NO.
SHEET NUMBER

WORK ITEM / DETAIL IDENTIFICATION
(FOR WORK ITEMS WITH DETAILS)

WORK ITEM NUMBER (SEE SPECIFICATIONS)
X.X
WORK ITEM IDENTIFICATION
(FOR WORK ITEMS WITHOUT DETAILS)

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WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1111 Ph
www.walkerconsultants.com

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2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

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REVISIONS

ISSUE:	BIDDING AND CONSTRUCTION
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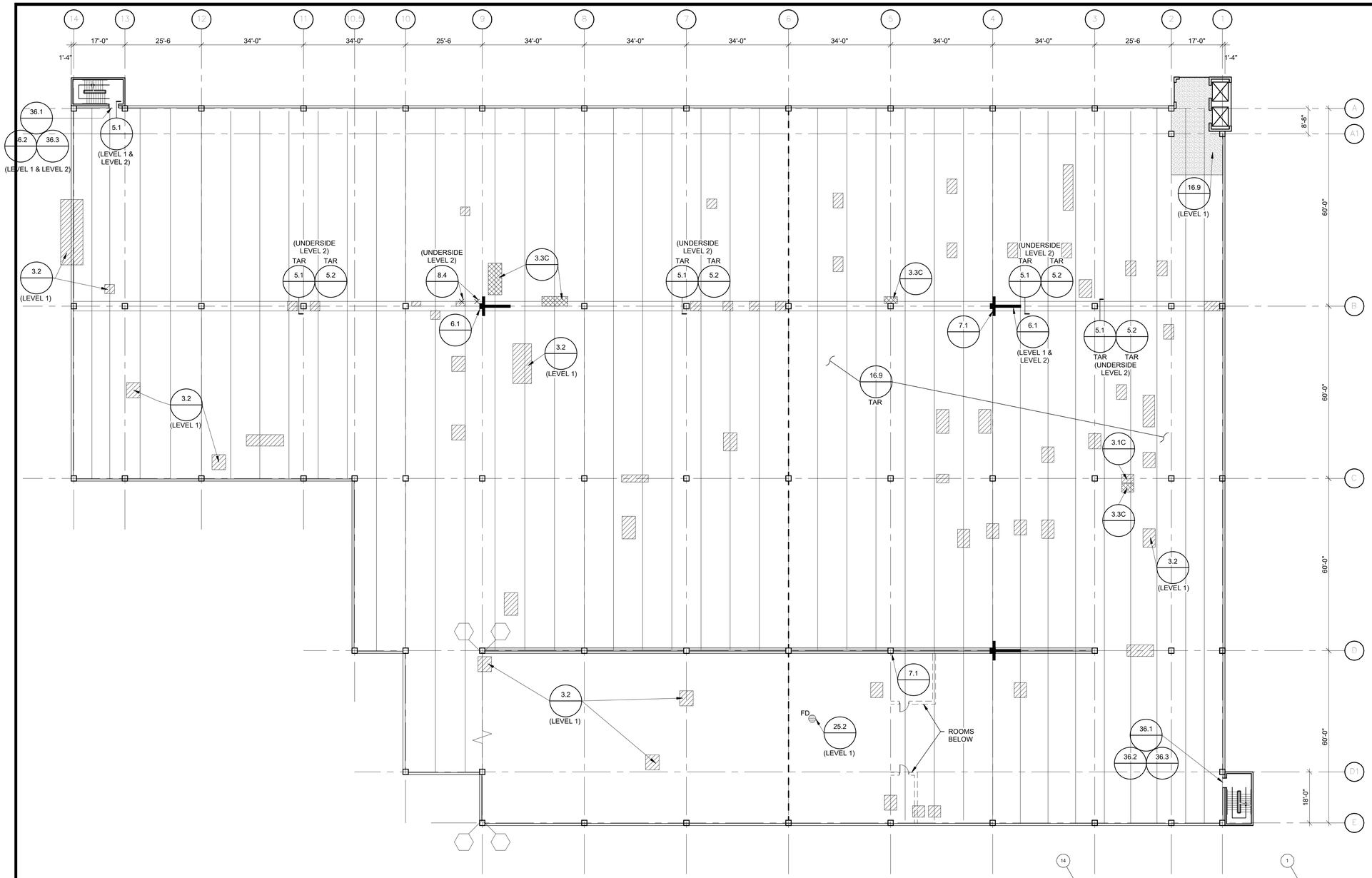
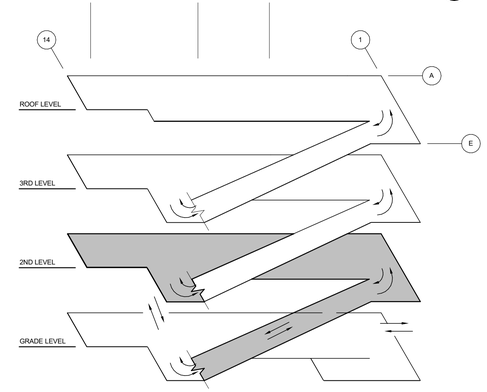
PROJECT NO:	20-002301.00
DRAWN BY:	ECC
CHECKED BY:	DJP

SHEET TITLE:
STRUCTURE #4
LEVEL 8 & LEVEL 9
FLOOR PLANS

R-113



1 PS #5 LEVEL 2



PARKING STRUCTURE #5

SHEET NOTES

1. REPRESENTATIVE REPAIR LOCATIONS ARE SHOWN. ACTUAL EXTENT AND EXACT LOCATIONS SHALL BE IDENTIFIED IN FIELD WITH ENGINEER PRIOR TO START OF WORK.
2. PERFORM TEE STEM TEST OPENING PER W.I. 8.2 AT LOCATIONS SHOWN. ALLOW ENGINEER TO OBSERVE CONDITIONS AT TEE STEM TEST OPENING, AND REPAIR STEM AS NEEDED / DIRECTED BY ENGINEER PER W.I. SERIES 8.0.
3. W.I.'S 5.1, 5.2, 8.1, 8.2, 8.3, 8.4, AND 8.5, OCCUR ON UNDERSIDE OF LEVEL SHOWN. REMAINING W.I.'S OCCUR ON TOPSIDE OF LEVEL SHOWN. VERIFY IN FIELD WITH ENGINEER.
4. SOUND FLOORS AND OBSERVE CEILINGS TO IDENTIFY AND MARK PARTIAL AND FULL-DEPTH FLOOR REPAIR LOCATIONS (W.I. SERIES 3.1C / 3.3C) IN FIELD WITH ENGINEER.
5. INSTALL, MAINTAIN, AND RELOCATE TEMPORARY SIGNAGE AND BARRIERS PER W.I. 1.5 PRIOR TO START OF WORK AND AS NEEDED THROUGHOUT THE PROJECT.
6. REPLACE TRAFFIC MARKINGS (W.I. 45.1) AFTER COMPLETION OF WORK. REFER TO SECTION 020010.
7. REMOVE LOOSE SECTIONS OF CONCRETE FROM ALL OVERHEAD SURFACES (ALL LEVELS, INCLUDING EXTERIOR FACADE) PER W.I. 4.9.

LEGEND

- FD — EXISTING FLOOR DRAIN
- W.I. 3.1C FLOOR REPAIR - PARTIAL DEPTH
- W.I. 3.3C FLOOR REPAIR - FULL DEPTH
- W.I. 16.1 TRAFFIC TOPPING - NEW SYSTEM (ALT)
- W.I. 16.4 TRAFFIC TOPPING - RECOAT
- W.I. 16.9 SCALING REPAIRS
- EXPANSION JOINT (EJ)

X.X.X / RX.X — WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS); CLARIFICATION DETAIL NO.; SHEET NUMBER

WORK ITEM / DETAIL IDENTIFICATION
(FOR WORK ITEMS WITH DETAILS)

X.X — WORK ITEM NUMBER (SEE SPECIFICATIONS)

WORK ITEM IDENTIFICATION
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525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1076 Ph
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MARK	DATE	DESCRIPTION
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REVISIONS

ISSUE: BIDDING AND CONSTRUCTION
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CHECKED BY: DJP

SHEET TITLE:
STRUCTURE #5
LEVEL 2 FLOOR
PLAN

R-114

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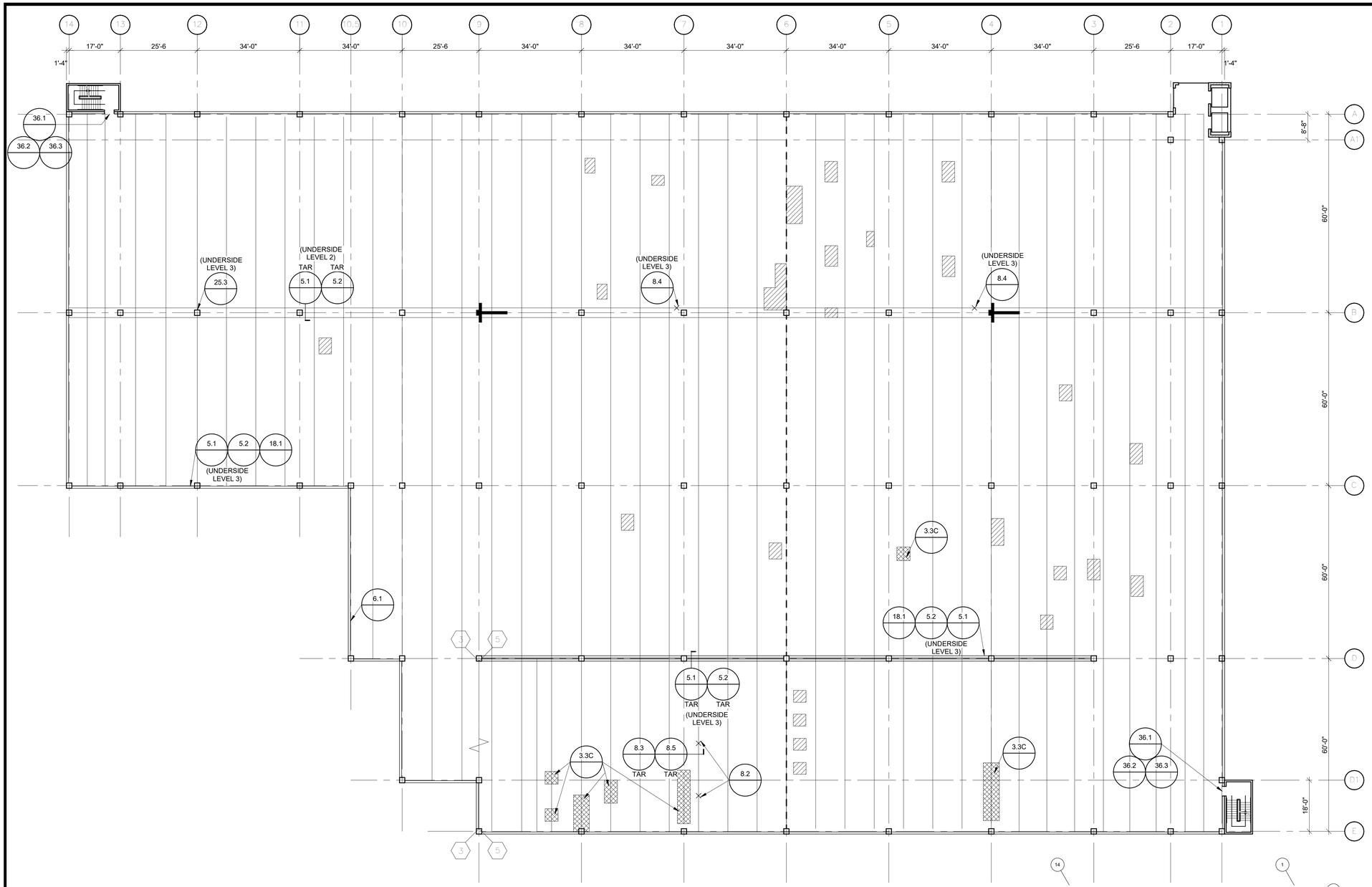

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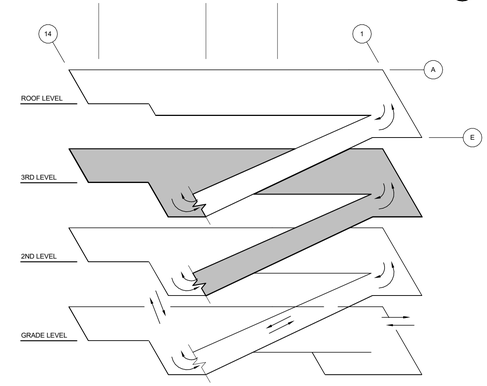

PARKING STRUCTURE #5

NOTES:
1. LOCATE ELEVATOR LOBBY REPAIRS IN FIELD W/ ENGINEER PRIOR TO START OF WORK.

SHEET NOTES

1. REPRESENTATIVE REPAIR LOCATIONS ARE SHOWN. ACTUAL EXTENT AND EXACT LOCATIONS SHALL BE IDENTIFIED IN FIELD WITH ENGINEER PRIOR TO START OF WORK.
2. PERFORM TEE STEM TEST OPENING PER W.I. 8.2 AT LOCATIONS SHOWN. ALLOW ENGINEER TO OBSERVE CONDITIONS AT TEE STEM TEST OPENING, AND REPAIR STEM AS NEEDED / DIRECTED BY ENGINEER PER W.I. SERIES 8.0.
3. W.I.'S 5.1, 5.2, 8.1, 8.2, 8.3, 8.4, AND 8.5, OCCUR ON UNDERSIDE OF LEVEL SHOWN. REMAINING W.I.'S OCCUR ON TOPSIDE OF LEVEL SHOWN. VERIFY IN FIELD WITH ENGINEER.
4. SOUND FLOORS AND OBSERVE CEILINGS TO IDENTIFY AND MARK PARTIAL AND FULL-DEPTH FLOOR REPAIR LOCATIONS (W.I. SERIES 3.1C / 3.3C) IN FIELD WITH ENGINEER.
5. INSTALL, MAINTAIN, AND RELOCATE TEMPORARY SIGNAGE AND BARRIERS PER W.I. 1.5 PRIOR TO START OF WORK AND AS NEEDED THROUGHOUT THE PROJECT.
6. REPLACE TRAFFIC MARKINGS (W.I. 45.1) AFTER COMPLETION OF WORK. REFER TO SECTION 020010.
7. REMOVE LOOSE SECTIONS OF CONCRETE FROM ALL OVERHEAD SURFACES (ALL LEVELS, INCLUDING EXTERIOR FACADE) PER W.I. 4.9.

LEGEND

- FD — EXISTING FLOOR DRAIN
- W.I. 3.1C FLOOR REPAIR - PARTIAL DEPTH
- W.I. 3.3C FLOOR REPAIR - FULL DEPTH
- W.I. 16.1 TRAFFIC TOPPING - NEW SYSTEM (ALT)
- W.I. 16.4 TRAFFIC TOPPING - RECOAT
- W.I. 16.9 SCALING REPAIRS
- EXPANSION JOINT (EJ)

X.X.X — WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS)
RX.X — CLARIFICATION DETAIL NO.
SHEET NUMBER

WORK ITEM / DETAIL IDENTIFICATION
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X.X — WORK ITEM NUMBER (SEE SPECIFICATIONS)

WORK ITEM IDENTIFICATION
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Ann Arbor, MI 48108
734.663.1076 Ph
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PROJECT NO:	20-002301.00
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CHECKED BY:	DJP

SHEET TITLE:
STRUCTURE #5
LEVEL 3 FLOOR
PLAN

R-115

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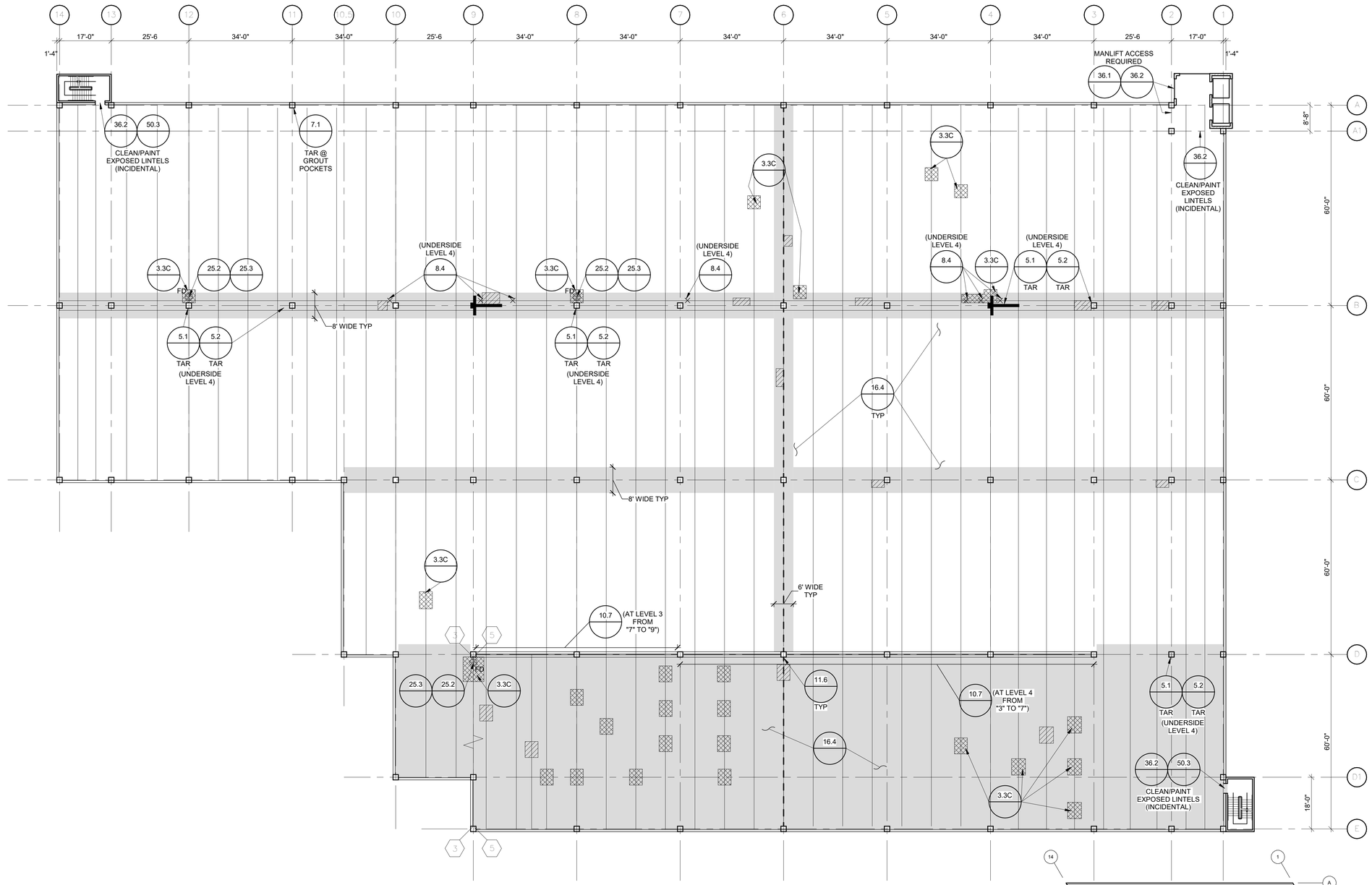
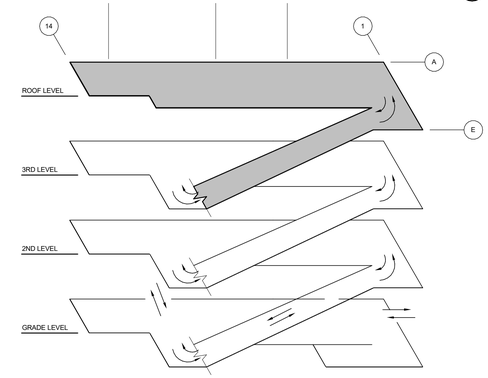


1 PS #5 LEVEL 4



PARKING STRUCTURE #5

NOTES:
1. LOCATE ELEVATOR LOBBY REPAIRS IN FIELD W/ ENGINEER PRIOR TO START OF WORK.

SHEET NOTES

1. REPRESENTATIVE REPAIR LOCATIONS ARE SHOWN. ACTUAL EXTENT AND EXACT LOCATIONS SHALL BE IDENTIFIED IN FIELD WITH ENGINEER PRIOR TO START OF WORK.
2. PERFORM TEE STEM TEST OPENING PER W.I. 8.2 AT LOCATIONS SHOWN. ALLOW ENGINEER TO OBSERVE CONDITIONS AT TEE STEM TEST OPENING, AND REPAIR STEM AS NEEDED / DIRECTED BY ENGINEER PER W.I. SERIES 8.0.
3. W.I.'S 5.1, 5.2, 8.1, 8.2, 8.3, 8.4, AND 8.5, OCCUR ON UNDERSIDE OF LEVEL SHOWN. REMAINING W.I.'S OCCUR ON TOPSIDE OF LEVEL SHOWN. VERIFY IN FIELD WITH ENGINEER.
4. SOUND FLOORS AND OBSERVE CEILINGS TO IDENTIFY AND MARK PARTIAL AND FULL-DEPTH FLOOR REPAIR LOCATIONS (W.I. SERIES 3.1C / 3.3C) IN FIELD WITH ENGINEER.
5. INSTALL, MAINTAIN, AND RELOCATE TEMPORARY SIGNAGE AND BARRIERS PER W.I. 1.5 PRIOR TO START OF WORK AND AS NEEDED THROUGHOUT THE PROJECT.
6. REPLACE TRAFFIC MARKINGS (W.I. 45.1) AFTER COMPLETION OF WORK. REFER TO SECTION 020010.
7. REMOVE LOOSE SECTIONS OF CONCRETE FROM ALL OVERHEAD SURFACES (ALL LEVELS, INCLUDING EXTERIOR FACADE) PER W.I. 4.9.

LEGEND

- FD — EXISTING FLOOR DRAIN
- W.I. 3.1C FLOOR REPAIR - PARTIAL DEPTH
- W.I. 3.3C FLOOR REPAIR - FULL DEPTH
- W.I. 16.1 TRAFFIC TOPPING - NEW SYSTEM (ALT)
- W.I. 16.4 TRAFFIC TOPPING - RECOAT
- W.I. 16.9 SCALING REPAIRS
- EXPANSION JOINT (EJ)

X.X.X — WORK ITEM/DETAIL NO. (SEE SPECIFICATIONS)
RX.X — CLARIFICATION DETAIL NO.
SHEET NUMBER

WORK ITEM / DETAIL IDENTIFICATION
(FOR WORK ITEMS WITH DETAILS)

X.X — WORK ITEM NUMBER (SEE SPECIFICATIONS)

WORK ITEM IDENTIFICATION
(FOR WORK ITEMS WITHOUT DETAILS)

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WALKER CONSULTANTS
525 Avis Drive, Suite 1
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www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
	03/24/2022	BIDDING AND CONSTRUCTIONON

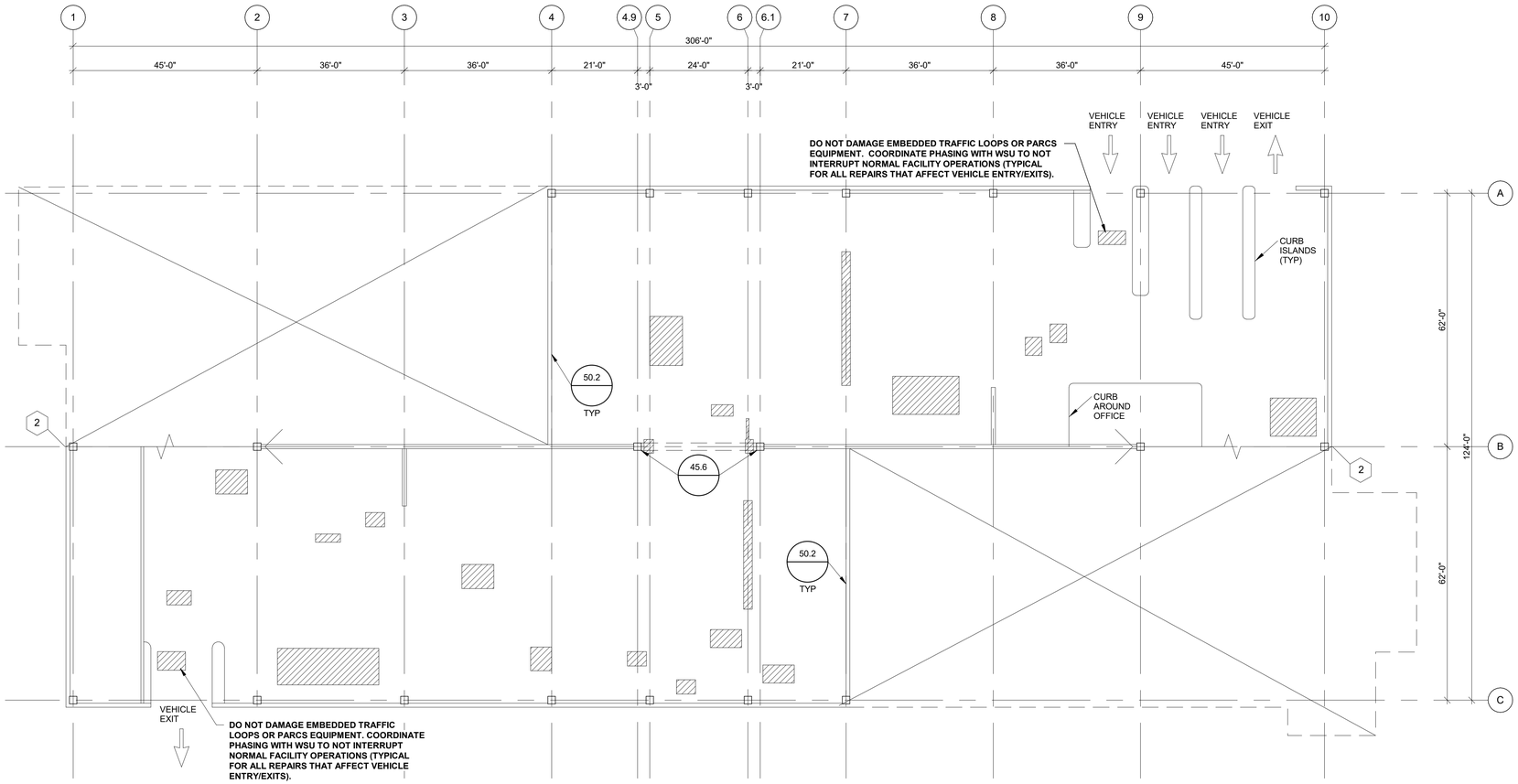
REVISIONS

ISSUE:	BIDDING AND CONSTRUCTION
ISSUE DATE:	3/24/2022
PROJECT NO:	20-002301.00
DRAWN BY:	ECC
CHECKED BY:	DJP

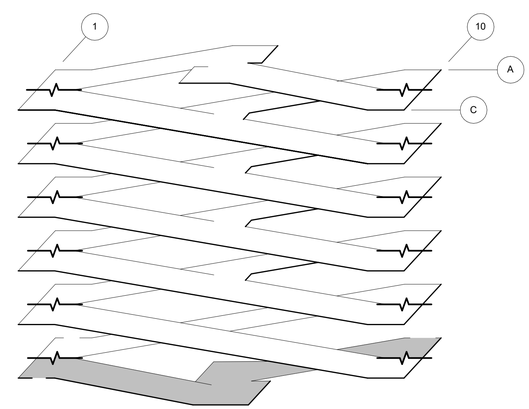
SHEET TITLE:
STRUCTURE #5
LEVEL 4 FLOOR
PLAN

R-116

3/24/2022 2:51:19 PM J:\20-002301-00-WSU_PS_#1_2022_Rprs\Drawings\2022 WSU RENOVATIONS.rvt



1 PS #6 LEVEL 1



SHEET NOTES

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4. ROUTE / SEAL MISC. FLOOR CRACKS ON SUPPORTED LEVELS PER W.I. 11.1.
5. REPLACE ALL TEE TO TEE SEALANTS ON LEVELS 6 & 7, AND LOCALIZED TEE TO TEE SEALANTS ON LEVELS 2-5 PER W.I. 11.2. LOCATE LEAKING JOINTS TO BE RESEALED ON LEVELS 2-5 IN FIELD BY OBSERVING UNDERSIDE DURING RAIN EVENT, OR WATER TEST.
6. REPLACE ALL WASH & COVE SEALANT ON LEVELS 6 & 7 PER W.I.'S 11.2 & 11.7. REPLACE LOCALIZED WASH AND COVE SEALANTS ON LEVELS 2-5 LOCATED DURING RAIN EVENT.
7. INSTALL COATING ON LEVELS 6 & 7 PER W.I. 16.1A, AND NEAR SHEAR WALLS ON ALL SUPPORTED LEVELS PER W.I. 16.1B. SEE ALT. W.I.'s 16.1C & 16.1D FOR OTHER POTENTIAL ALTERNATE COATING WORK. AREAS OF EXISTING COATING THAT OCCUR WHERE NEW COATING IS BEING INSTALLED REQUIRE RECOAT INCIDENTAL TO THIS WORK. SEE SECTION 020010 FOR FURTHER INFORMATION.
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9. LOCATE SUPPLEMENTAL SHEAR CONNECTOR REPAIRS PER W.I. 50.1 IN FIELD WITH ENGINEER.
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13. SEE R-002 FOR PHASING AND WORK AREA REQUIREMENTS.
14. WALL REPAIRS PER W.I. 7.1 OCCUR ON UNDERSIDE OF LEVEL SHOWN.

LEGEND

- FD — EXISTING FLOOR DRAIN
- W.I. 3.1D, 3.1E - FLOOR REPAIR - PARTIAL DEPTH
- W.I. 3.2 - FLOOR REPAIR - SLAB ON GRADE
- W.I. 3.3D - FLOOR REPAIR - FULL DEPTH
- EXISTING COATING

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WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
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DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
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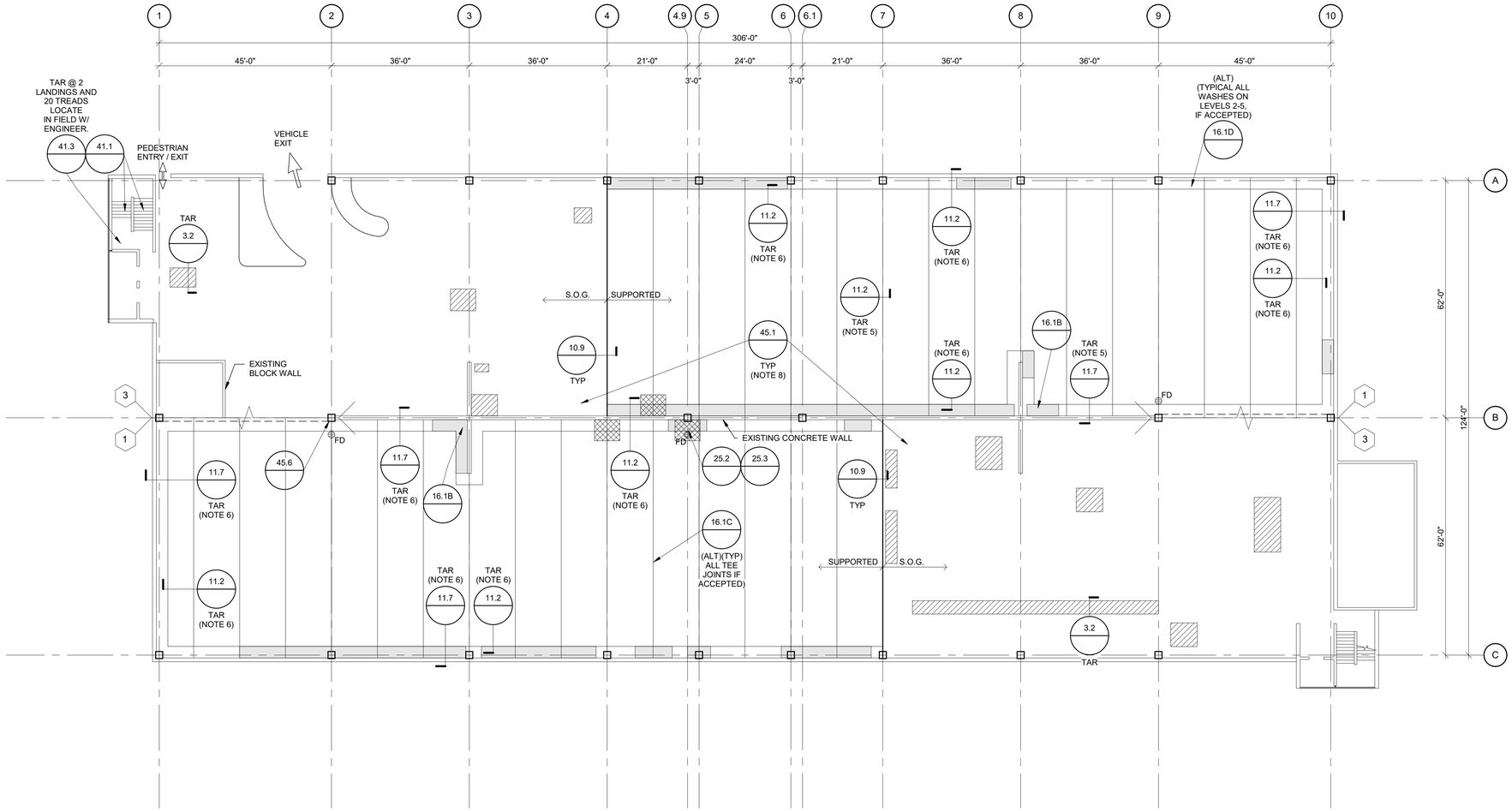
REVISIONS

ISSUE: BIDDING AND CONSTRUCTION
ISSUE DATE: 3/24/2022
PROJECT NO: 20-002301.00
DRAWN BY: ECC
CHECKED BY: DJP

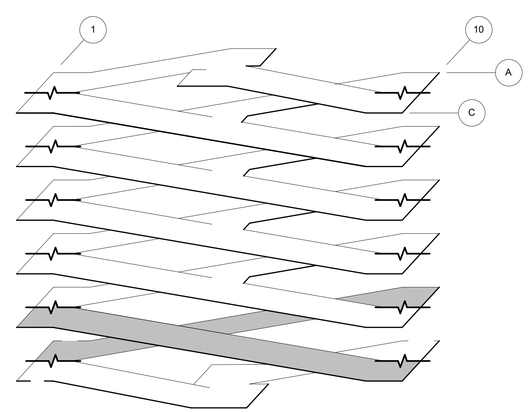
SHEET TITLE:
STRUCTURE #6
LEVEL 1 FLOOR
PLAN

R-117

3/24/2022 2:51:19 PM J:\20-002301-00-WSU_PS_#1_2022_Rprs\Drawings\2022 WSU RENOVATIONS.rvt



1 PS #6 LEVEL 2



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5. REPLACE ALL TEE TO TEE SEALANTS ON LEVELS 6 & 7, AND LOCALIZED TEE TO TEE SEALANTS ON LEVELS 2-5 PER W.I. 11.2. LOCATE LEAKING JOINTS TO BE RESEALED ON LEVELS 2-5 IN FIELD BY OBSERVING UNDERSIDE DURING RAIN EVENT, OR WATER TEST.
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LEGEND

- FD — EXISTING FLOOR DRAIN
- W.I. 3.1D, 3.1E - FLOOR REPAIR - PARTIAL DEPTH
- W.I. 3.2 - FLOOR REPAIR - SLAB ON GRADE
- W.I. 3.3D - FLOOR REPAIR - FULL DEPTH
- EXISTING COATING

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2022 PARKING STRUCTURES
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DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
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PROJECT NO: 20-002301.00
DRAWN BY: ECC
CHECKED BY: DJP

SHEET TITLE:
STRUCTURE #6
LEVEL 2 FLOOR
PLAN

R-118

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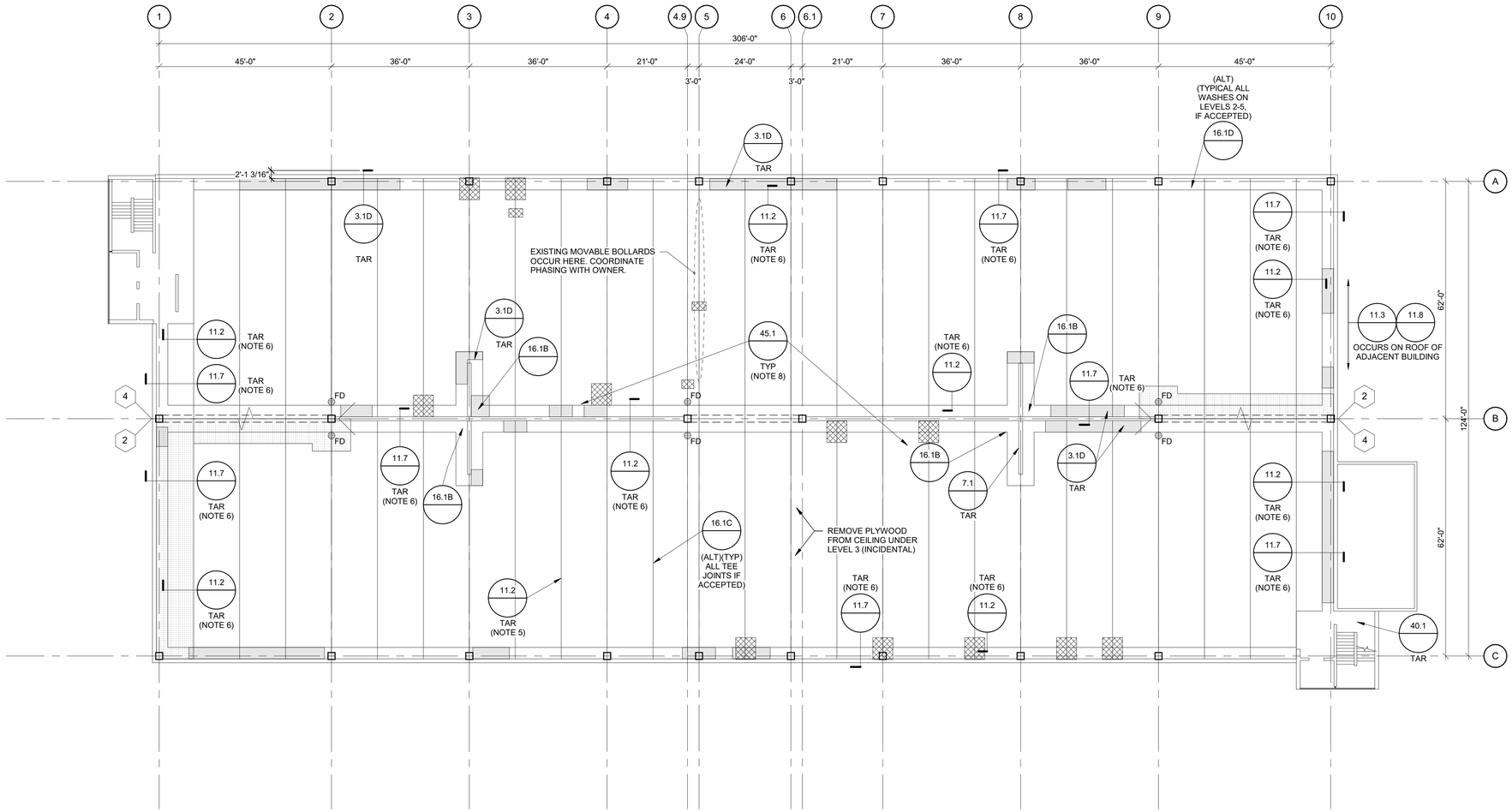
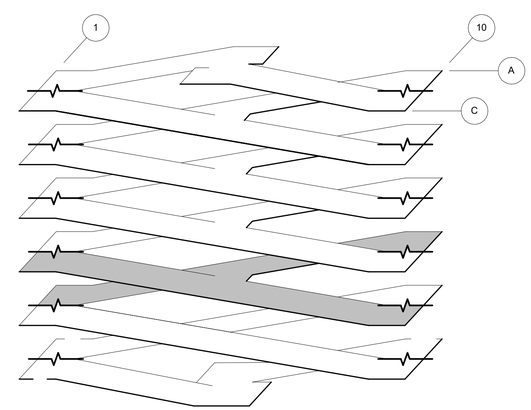


1 PS #6 LEVEL 3



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LEGEND

- FD — EXISTING FLOOR DRAIN
- W.I. 3.1D, 3.1E - FLOOR REPAIR - PARTIAL DEPTH
- W.I. 3.2 - FLOOR REPAIR - SLAB ON GRADE
- W.I. 3.3D - FLOOR REPAIR - FULL DEPTH
- EXISTING COATING

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DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
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PROJECT NO: 20-002301.00
DRAWN BY: ECC
CHECKED BY: DJP

SHEET TITLE:
STRUCTURE #6
LEVEL 3 FLOOR
PLAN

R-119

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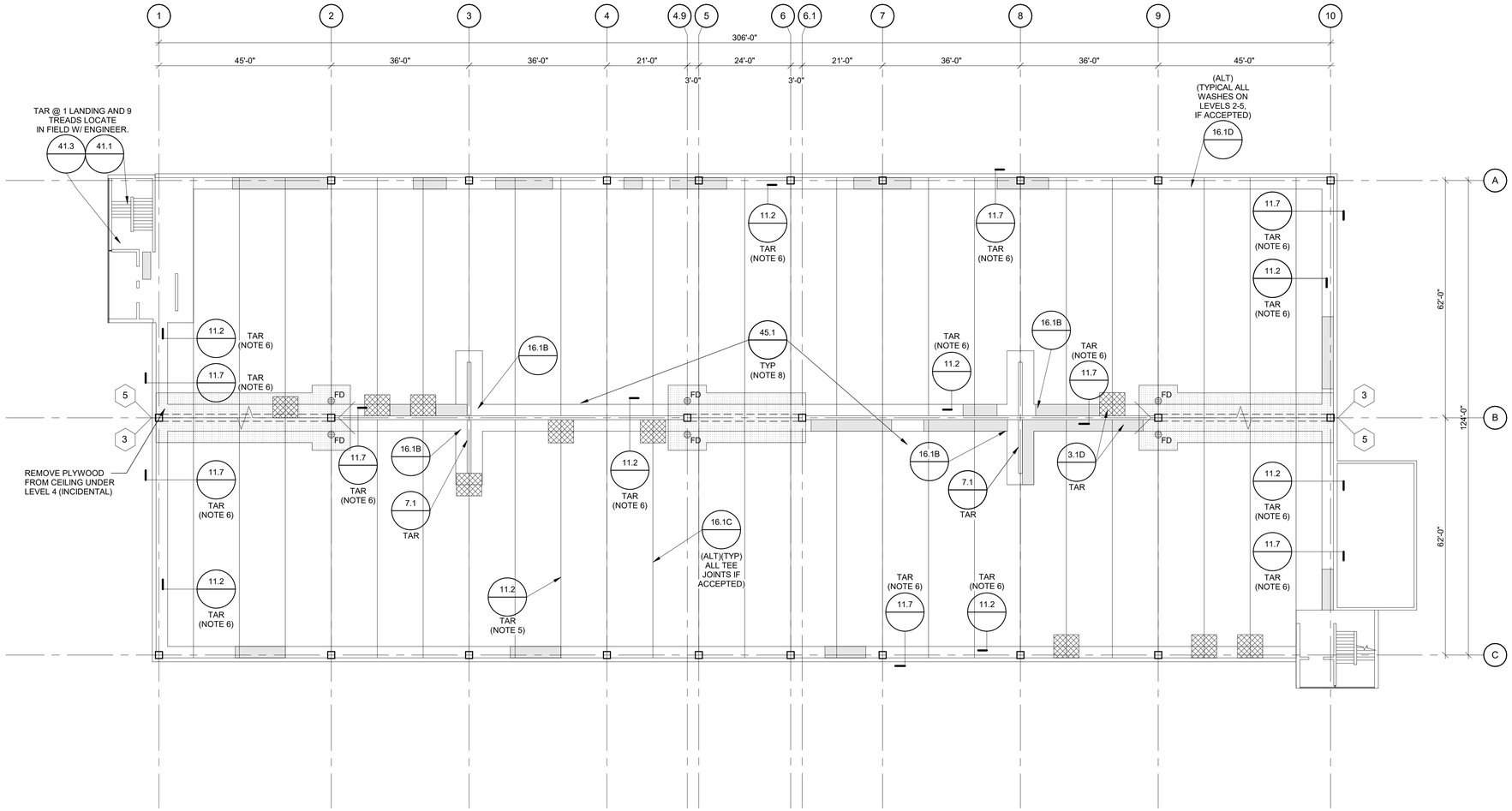
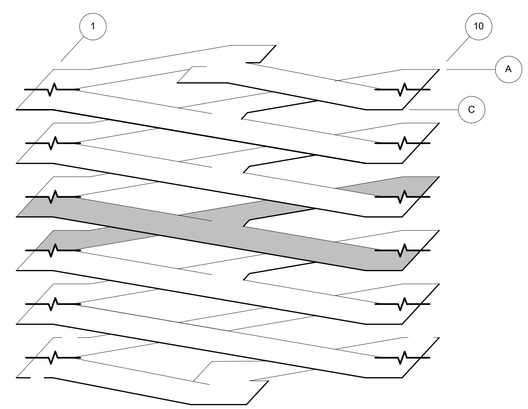


1 PS #6 LEVEL 4



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LEGEND

- FD — EXISTING FLOOR DRAIN
- W.I. 3.1D, 3.1E - FLOOR REPAIR - PARTIAL DEPTH
- W.I. 3.2 - FLOOR REPAIR - SLAB ON GRADE
- W.I. 3.3D - FLOOR REPAIR - FULL DEPTH
- EXISTING COATING

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DRAWN BY: ECC
CHECKED BY: DJP

SHEET TITLE:
STRUCTURE #6
LEVEL 4 FLOOR
PLAN

R-120

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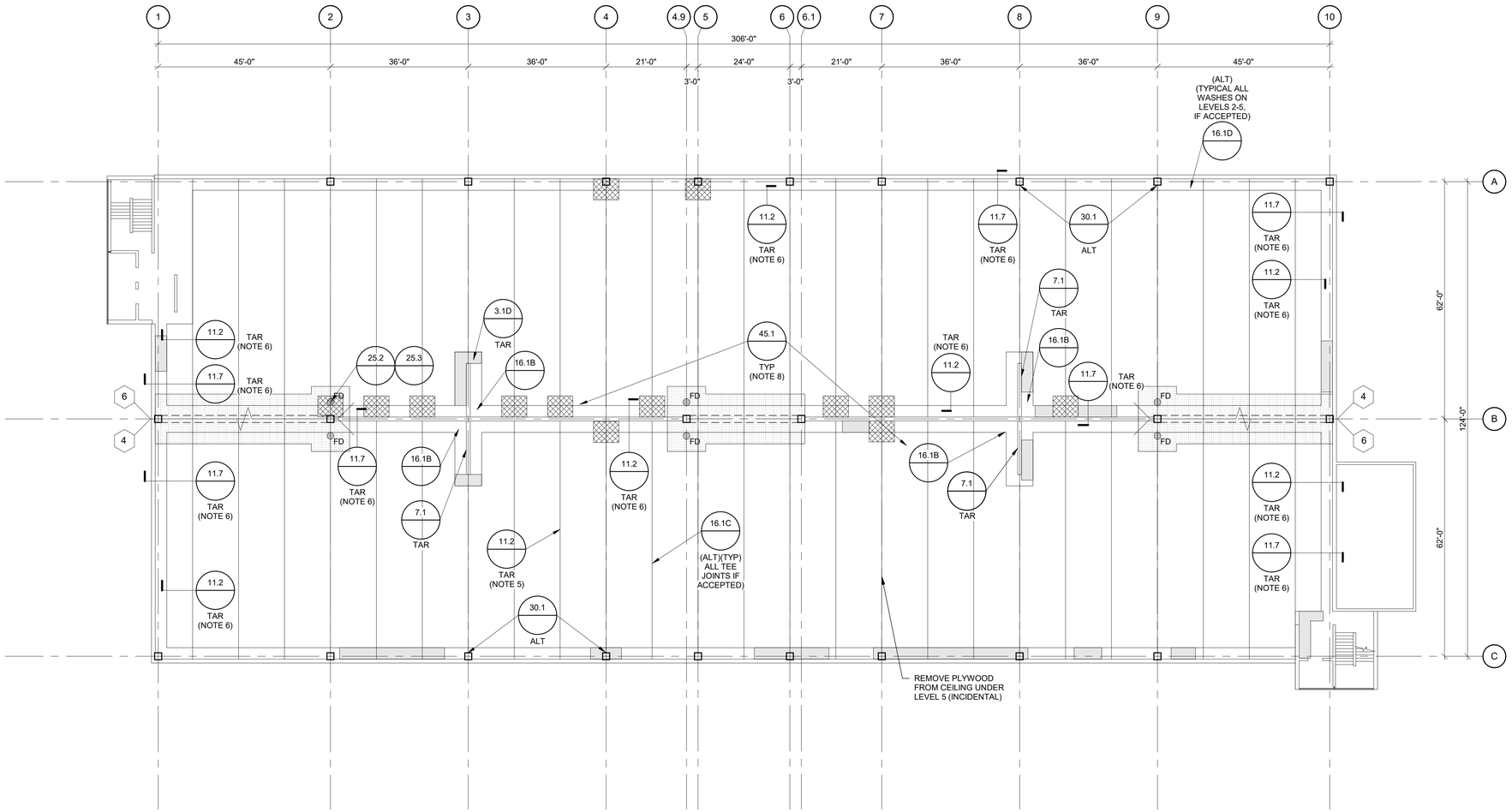
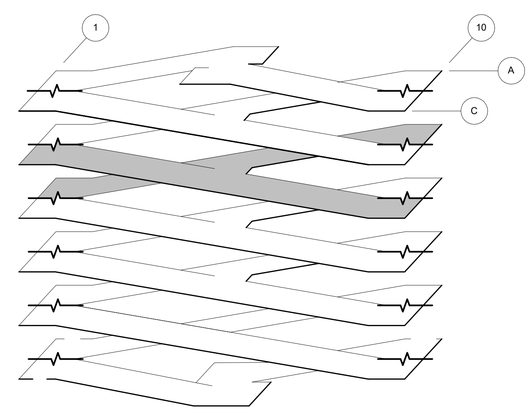


1 PS #6 LEVEL 5



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- W.I. 3.1D, 3.1E - FLOOR REPAIR - PARTIAL DEPTH
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- EXISTING COATING

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WORK ITEM / DETAIL IDENTIFICATION
(FOR WORK ITEMS WITH DETAILS)

X.X — WORK ITEM NUMBER (SEE SPECIFICATIONS)

WORK ITEM IDENTIFICATION
(FOR WORK ITEMS WITHOUT DETAILS)

NORTH

WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.665.1017 Ph.
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
	03/24/2022	BIDDING AND CONSTRUCTION

REVISIONS

ISSUE: BIDDING AND CONSTRUCTION
ISSUE DATE: 3/24/2022
PROJECT NO: 20-002301.00
DRAWN BY: ECC
CHECKED BY: DJP

SHEET TITLE:
STRUCTURE #6
LEVEL 5 FLOOR
PLAN

R-121

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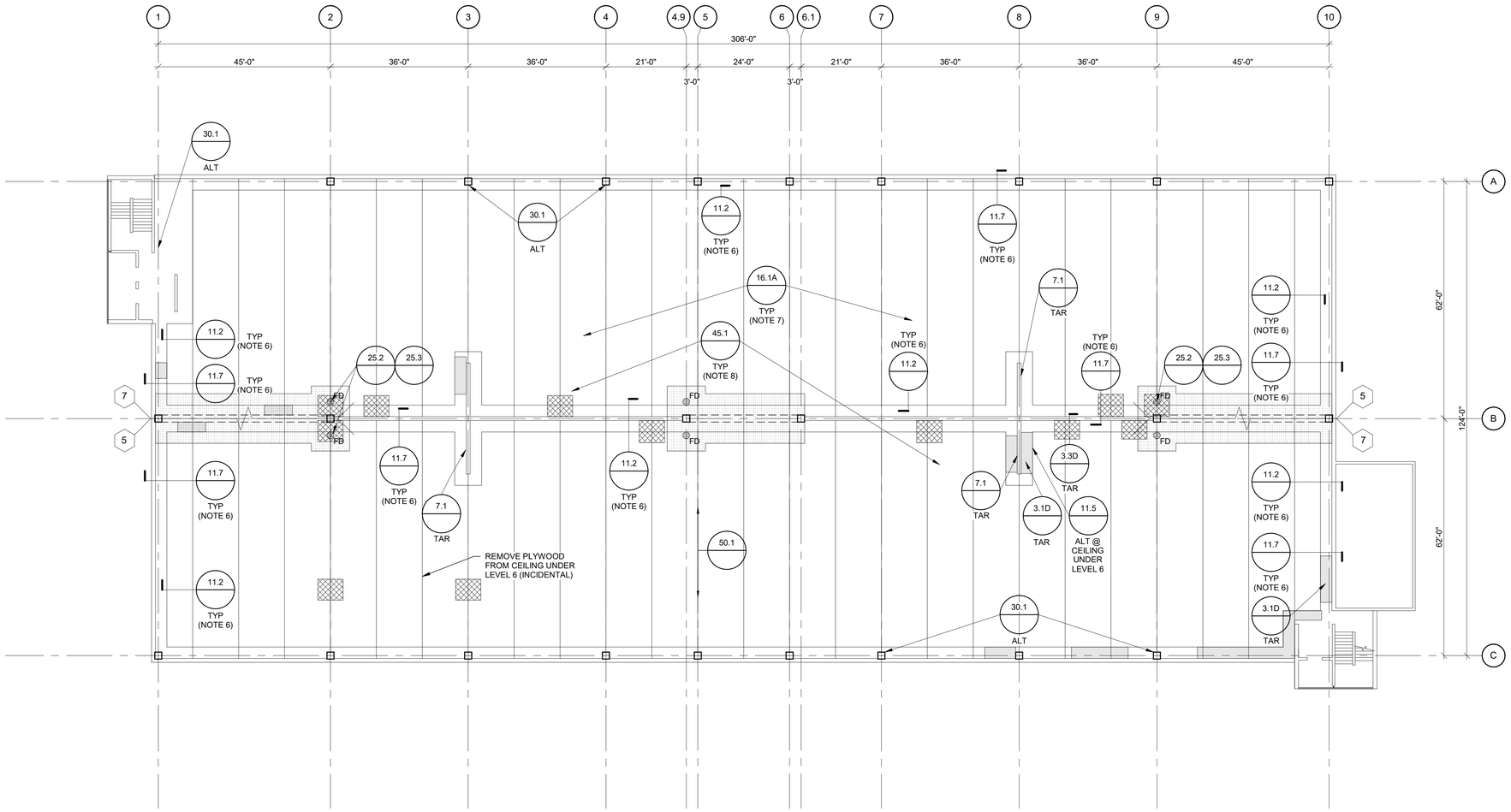
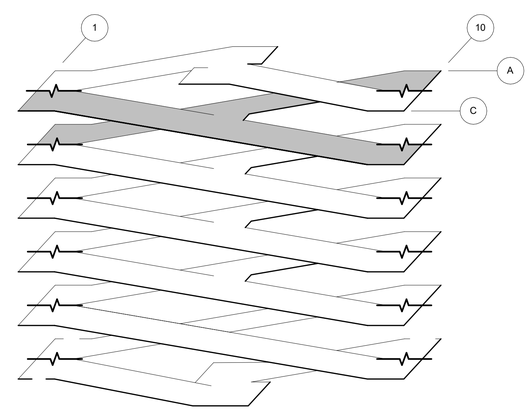


1 PS #6 LEVEL 6



SHEET NOTES

1. CONTRACTOR SHALL NOT EXCEED BID QUANTITIES WITHOUT WRITTEN AUTHORIZATION FROM OWNER.
2. GENERAL FLOOR REPAIR LOCATIONS ARE SHOWN. EXACT LOCATIONS SHALL BE IDENTIFIED IN FIELD WITH ENGINEER PRIOR TO START OF WORK.
3. REFER TO DRAWING R-002 FOR PHASING & PARKING SPACE CLOSURE REQUIREMENTS. INSTALL ALL SIGNAGE / BARRIERS PER W.I. 1.5 PRIOR TO START OF WORK.
4. ROUTE / SEAL MISC. FLOOR CRACKS ON SUPPORTED LEVELS PER W.I. 11.1.
5. REPLACE ALL TEE TO TEE SEALANTS ON LEVELS 6 & 7, AND LOCALIZED TEE TO TEE SEALANTS ON LEVELS 2-5 PER W.I. 11.2. LOCATE LEAKING JOINTS TO BE RESEALED ON LEVELS 2-5 IN FIELD BY OBSERVING UNDERSIDE DURING RAIN EVENT, OR WATER TEST.
6. REPLACE ALL WASH & COVE SEALANT ON LEVELS 6 & 7 PER W.I.'S 11.2 & 11.7. REPLACE LOCALIZED WASH AND COVE SEALANTS ON LEVELS 2-5 LOCATED DURING RAIN EVENT.
7. INSTALL COATING ON LEVELS 6 & 7 PER W.I. 16.1A, AND NEAR SHEAR WALLS ON ALL SUPPORTED LEVELS PER W.I. 16.1B. SEE ALT. W.I.'s 16.1C & 16.1D FOR OTHER POTENTIAL ALTERNATE COATING WORK. AREAS OF EXISTING COATING THAT OCCUR WHERE NEW COATING IS BEING INSTALLED REQUIRE RECOAT INCIDENTAL TO THIS WORK. SEE SECTION 020010 FOR FURTHER INFORMATION.
8. RE-STRIPE PAVEMENT MARKINGS PER REQUIREMENTS OF W.I. 45.1.
9. LOCATE SUPPLEMENTAL SHEAR CONNECTOR REPAIRS PER W.I. 50.1 IN FIELD WITH ENGINEER.
10. NOTE: BREAK LINES USED ON DRAWINGS TO DENOTE LEVELS DO NOT MATCH EXISTING SIGNAGE IN STRUCTURE.
11. REMOVE ALL LOOSE SECTIONS OF OVERHEAD CONCRETE THROUGHOUT STRUCTURE PER W.I. 4.9. INCLUDES REMOVAL OF EXISTING PLYWOOD (TYPICAL LOCATIONS INDICATED ON PLANS) AND LOOSE SECTIONS OF BACKER ROD (NOT SHOWN). CONTRACTOR TO VERIFY REQUIREMENTS IN FIELD.
12. SUBMIT PHASING PLAN AND COORDINATE SCHEDULE FOR PERFORMING REPAIRS THAT AFFECT ENTRY / EXITS IN ADVANCE WITH WSU.
13. SEE R-002 FOR PHASING AND WORK AREA REQUIREMENTS.
14. WALL REPAIRS PER W.I. 7.1 OCCUR ON UNDERSIDE OF LEVEL SHOWN.

LEGEND

- FD — EXISTING FLOOR DRAIN
- W.I. 3.1D, 3.1E - FLOOR REPAIR - PARTIAL DEPTH
- W.I. 3.2 - FLOOR REPAIR - SLAB ON GRADE
- W.I. 3.3D - FLOOR REPAIR - FULL DEPTH
- EXISTING COATING

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525 Avis Drive, Suite 1
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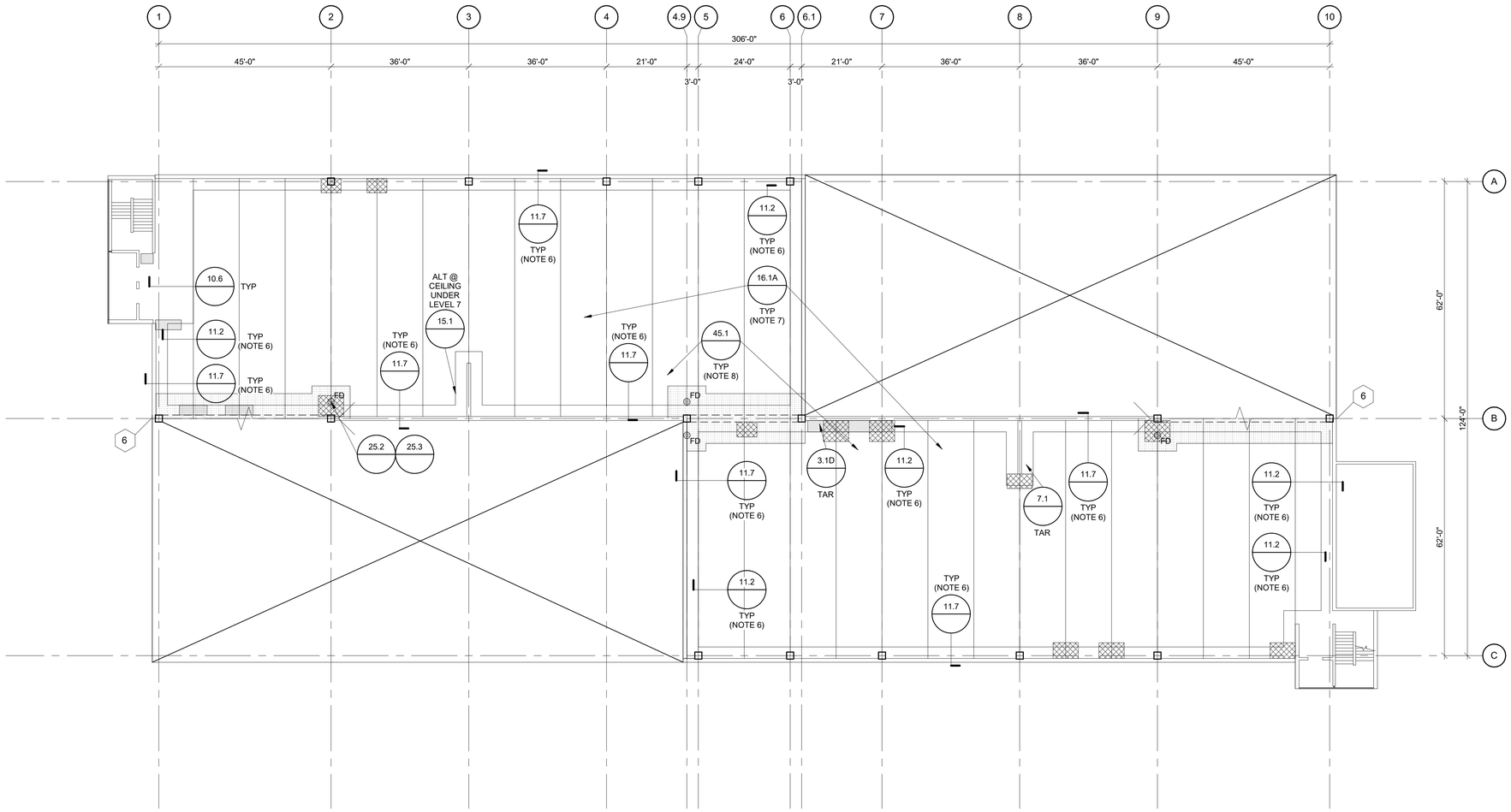
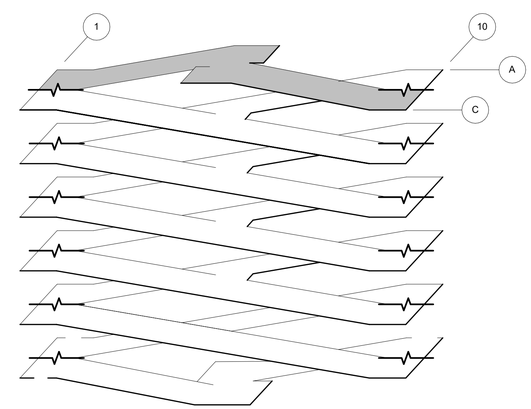
SHEET TITLE:
STRUCTURE #6
LEVEL 6 FLOOR
PLAN

R-122

3/24/2022 2:51:21 PM J:\20-002301-00-WSU_PS_#1_2022_Rprs\Drawings\2022 WSU RENOVATIONS.rvt



1 PS #6 LEVEL 7



SHEET NOTES

1. CONTRACTOR SHALL NOT EXCEED BID QUANTITIES WITHOUT WRITTEN AUTHORIZATION FROM OWNER.
2. GENERAL FLOOR REPAIR LOCATIONS ARE SHOWN. EXACT LOCATIONS SHALL BE IDENTIFIED IN FIELD WITH ENGINEER PRIOR TO START OF WORK.
3. REFER TO DRAWING R-002 FOR PHASING & PARKING SPACE CLOSURE REQUIREMENTS. INSTALL ALL SIGNAGE / BARRIERS PER W.I. 1.5 PRIOR TO START OF WORK.
4. ROUTE / SEAL MISC. FLOOR CRACKS ON SUPPORTED LEVELS PER W.I. 11.1.
5. REPLACE ALL TEE TO TEE SEALANTS ON LEVELS 6 & 7, AND LOCALIZED TEE TO TEE SEALANTS ON LEVELS 2-5 PER W.I. 11.2. LOCATE LEAKING JOINTS TO BE RESEALED ON LEVELS 2-5 IN FIELD BY OBSERVING UNDERSIDE DURING RAIN EVENT, OR WATER TEST.
6. REPLACE ALL WASH & COVE SEALANT ON LEVELS 6 & 7 PER W.I.'S 11.2 & 11.7. REPLACE LOCALIZED WASH AND COVE SEALANTS ON LEVELS 2-5 LOCATED DURING RAIN EVENT.
7. INSTALL COATING ON LEVELS 6 & 7 PER W.I. 16.1A, AND NEAR SHEAR WALLS ON ALL SUPPORTED LEVELS PER W.I. 16.1B. SEE ALT. W.I.'s 16.1C & 16.1D FOR OTHER POTENTIAL ALTERNATE COATING WORK. AREAS OF EXISTING COATING THAT OCCUR WHERE NEW COATING IS BEING INSTALLED REQUIRE RECOAT INCIDENTAL TO THIS WORK. SEE SECTION 020010 FOR FURTHER INFORMATION.
8. RE-STRIPE PAVEMENT MARKINGS PER REQUIREMENTS OF W.I. 45.1.
9. LOCATE SUPPLEMENTAL SHEAR CONNECTOR REPAIRS PER W.I. 50.1 IN FIELD WITH ENGINEER.
10. NOTE: BREAK LINES USED ON DRAWINGS TO DENOTE LEVELS DO NOT MATCH EXISTING SIGNAGE IN STRUCTURE.
11. REMOVE ALL LOOSE SECTIONS OF OVERHEAD CONCRETE THROUGHOUT STRUCTURE PER W.I. 4.9. INCLUDES REMOVAL OF EXISTING PLYWOOD (TYPICAL LOCATIONS INDICATED ON PLANS) AND LOOSE SECTIONS OF BACKER ROD (NOT SHOWN). CONTRACTOR TO VERIFY REQUIREMENTS IN FIELD.
12. SUBMIT PHASING PLAN AND COORDINATE SCHEDULE FOR PERFORMING REPAIRS THAT AFFECT ENTRY / EXITS IN ADVANCE WITH WSU.
13. SEE R-002 FOR PHASING AND WORK AREA REQUIREMENTS.
14. WALL REPAIRS PER W.I. 7.1 OCCUR ON UNDERSIDE OF LEVEL SHOWN.

LEGEND

- FD — EXISTING FLOOR DRAIN
- W.I. 3.1D, 3.1E - FLOOR REPAIR - PARTIAL DEPTH
- W.I. 3.2 - FLOOR REPAIR - SLAB ON GRADE
- W.I. 3.3D - FLOOR REPAIR - FULL DEPTH
- EXISTING COATING

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Ann Arbor, MI 48108
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SHEET TITLE:
STRUCTURE #6
LEVEL 7 FLOOR
PLAN

R-123

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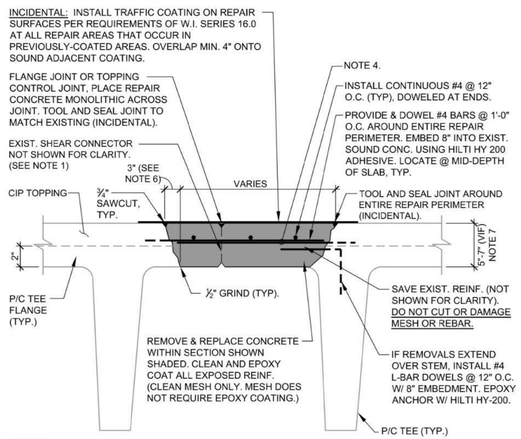
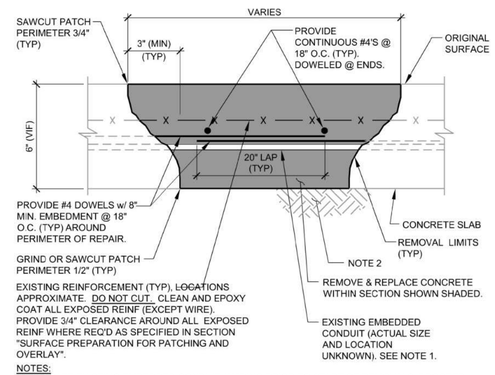


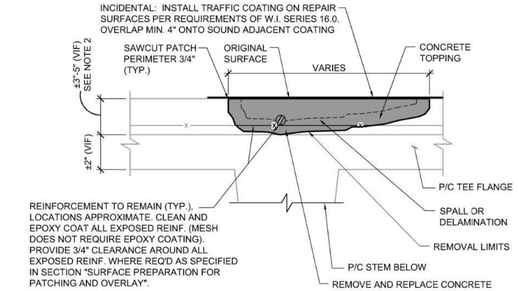
NOTES:
1. SANDBLAST AND EPOXY COAT ALL BROKEN TEE FLANGE SHEAR CONNECTORS, (OR REMOVE) AND EPOXY ANCHOR (2) ADDITIONAL #4 BY 3'-0" LONG ACROSS JOINT @ MID DEPTH AS DIRECTED BY ENGINEER. (INCIDENTAL).
2. PROVIDE 1½" COVER OVER ALL REINFORCEMENT.
3. REINFORCING STEEL INSTALLATION REQUIRED ON THIS DETAIL IS INCIDENTAL TO THIS WORK ITEM.
4. MINIMUM LAP SPLICE FOR #4 BARS IS 20"
5. CAUTION: JUNCTION BOXES AND CONDUIT / WIRING ARE PRESENT IN TOPPING CONCRETE. LOCATE CONDUIT PRIOR TO START OF WORK AND PERFORM REMOVALS IN MANNER TO NOT DAMAGE. COORDINATE WITH WSU TO POWER OFF CIRCUITS PRIOR TO START OF WORK. PERFORM ANY NECESSARY ELECTRICAL REPAIRS UNDER ALLOWANCE W.I. 25.1. TEST AND CONFIRM ALL CIRCUITS AND LIGHTS ARE WORKING PRIOR TO PLACING CONCRETE.
6. PERFORM FULL DEPTH REMOVALS TO MAINTAIN AN INWARD ANGLE AROUND THE REPAIR PERIMETER AS SHOWN.
7. ACTUAL THICKNESS OF SLAB VARIES. CONTRACTOR RESPONSIBLE FOR REMOVAL DEPTHS UP TO 7" (AS SHOWN). INCLUDE IN SUBMITTED UNIT PRICE; NO EXTRAS ALLOWED.

3.3C FLOOR REPAIR - FULL DEPTH (P/C FIELD-TOPPED)
(PS #5)



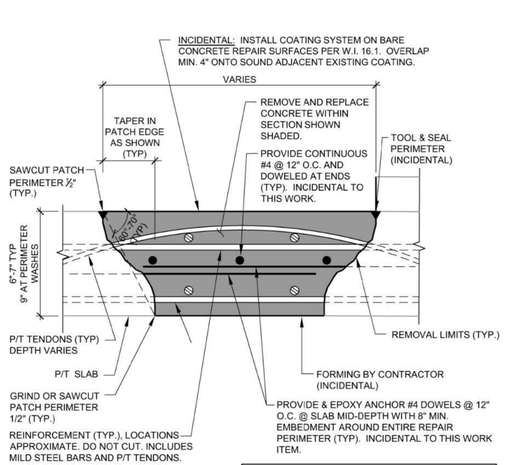
NOTES:
1. LOCATE EXISTING EMBEDDED CONDUIT / WIRING PRIOR TO START OF REMOVALS. PROCEED WITH CAUTION TO NOT DAMAGE, CUT OR NICK.
2. CONTRACTOR SHALL PROVIDE/REMOVE FILL AS NECESSARY & COMPACT PRIOR TO POURING CONCRETE. (INCIDENTAL TO THIS WORK)

3.2 FLOOR REPAIR - SLAB-ON-GRADE
(PS#1, PS#4, PS#5, PS#6)



NOTES:
1. PROVIDE TOOLED JOINTS IN REPAIR AREAS AS REQUIRED TO MAINTAIN EXISTING JOINT LAYOUT PER W.I. 11.4.
2. ACTUAL DEPTH OF REQUIRED REMOVALS VARIES. CONTRACTOR RESPONSIBLE FOR REMOVAL DEPTHS UP TO 5" (AS SHOWN). INCLUDE IN SUBMITTED UNIT PRICE; NO EXTRAS ALLOWED. DO NOT EXTEND REMOVALS BELOW TOP SURFACE OF TEE FLANGE.
3. CAUTION: JUNCTION BOXES AND CONDUIT / WIRING ARE PRESENT IN TOPPING CONCRETE. LOCATE PRIOR TO START OF WORK AND PERFORM REMOVALS IN MANNER TO NOT DAMAGE EMBEDDED CONDUIT / WIRING. COORDINATE WITH WSU TO POWER OFF CIRCUITS PRIOR TO START OF WORK. PERFORM ANY NECESSARY ELECTRICAL REPAIRS UNDER ALLOWANCE W.I. 25.1. TEST AND CONFIRM ALL CIRCUITS AND LIGHTS ARE WORKING PRIOR TO PLACING CONCRETE.

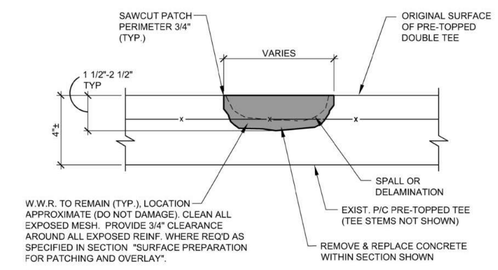
3.1C FLOOR REPAIR - PARTIAL DEPTH (P/C FIELD-TOPPED)
(PS #5)



CAUTION NOTE:
THE FLOOR SLAB HAS POST-TENSIONING TENDONS. THESE TENDONS ARE NEAR THE FLOOR SURFACE AT SPALLS AND DELAMINATIONS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN SAW-CUTTING SO AS NOT TO DAMAGE EXISTING TENDONS OR TENDON SHEATHS. TENDONS MAY BREAK WITH EXPLOSIVE FORCE WHEN CUT. CHIPPING WITH 15 LB HAMMERS SHALL BE USED IN LIEU OF SAW-CUTTING NEAR SHALLOW TENDONS.

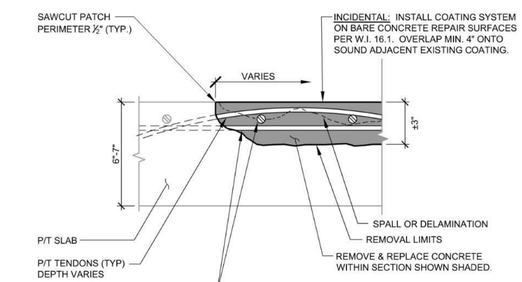
NOTES:
1. REFER TO DETAIL SERIES 21.0 FOR P/T REPAIR REQUIREMENTS.
2. SPACING AND LOCATION OF P/T TENDONS UNKNOWN. CONTRACTOR TO V.I.F.
3. REFER TO SECTION 025140 FOR SANDBLASTING AND SURFACE PREPARATION REQUIREMENTS.
4. PROVIDE SUPPLEMENTAL REINFORCEMENT AS SHOWN (INCIDENTAL).

3.3B FLOOR REPAIR - FULL DEPTH (P/T)
(PS #4)



NOTES:
1. LOCATE SPECIFIC REPAIR LOCATIONS IN FIELD WITH ENGINEER.
2. TOOL AND SEAL JOINTS IN REPAIR AREAS TO MATCH EXISTING PER W.I. SERIES 11.0.
3. WHERE REPAIRS OCCUR ALONG PRE-TOPPED TEE JOINTS, JOINT EDGES SHALL BE RADIUS-TOOLED OR BEVELED TO PROVIDE PROPER JOINT PROFILE.

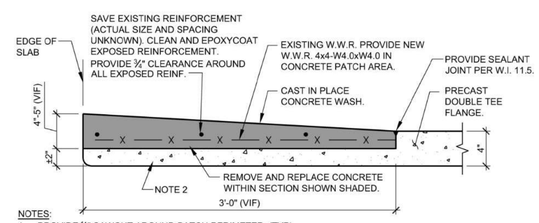
3.1E FLOOR REPAIR - PARTIAL DEPTH (PRE-TOPPED)
(PS #6)



CAUTION NOTE:
THE FLOOR SLAB HAS POST-TENSIONING TENDONS. THESE TENDONS ARE NEAR THE FLOOR SURFACE AT SPALLS AND DELAMINATIONS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN SAW-CUTTING SO AS NOT TO DAMAGE EXISTING TENDONS OR TENDON SHEATHS. TENDONS MAY BREAK WITH EXPLOSIVE FORCE WHEN CUT. CHIPPING WITH 15 LB HAMMERS SHALL BE USED IN LIEU OF SAW-CUTTING NEAR SHALLOW TENDONS.

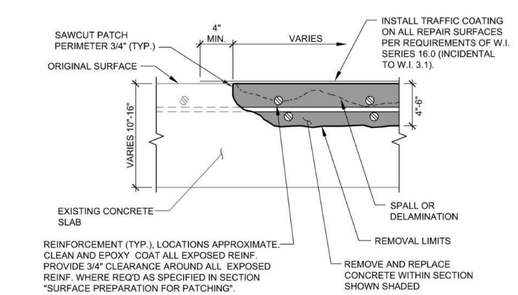
NOTES:
1. REFER TO DETAIL SERIES 21.0 FOR P/T REPAIR REQUIREMENTS.
2. SPACING & LOCATION OF P/T TENDONS UNKNOWN. CONTRACTOR TO V.I.F.
3. P/T TENDONS AND ANCHORS EXIST IN SLAB (NOT SHOWN ABOVE). USE CAUTION DURING REMOVALS NOT TO DAMAGE P/T SYSTEM ELEMENTS. CONTRACTOR CAUSED DAMAGE TO P/T SYSTEM SHALL BE REPAIRED BY CONTRACTOR AT NO COST TO THE OWNER.
4. EMBEDDED CONDUIT MAY BE ENCOUNTERED IN SLAB, LOCATE PRIOR TO REMOVALS. USE CAUTION DURING REMOVALS NOT TO DAMAGE.
5. SANDBLAST AND PREPARE REPAIR SURFACES PER REQUIREMENTS OF SECTION "025140".
6. TOOL AND SEAL CONTROL JOINTS IN REPAIR AREAS AS NEEDED TO MATCH EXISTING JOINT LAYOUT PER W.I. 11.4.

3.1B FLOOR REPAIR - PARTIAL DEPTH (P/T)
(PS #4)



NOTES:
1. PROVIDE ½" SAWCUT AROUND PATCH PERIMETER. (TYP)
2. PERFORM REMOVALS IN A MANNER THAT WILL NOT DAMAGE PRECAST DOUBLE TEE FLANGE OR EMBEDDED REINFORCEMENT. ADJUST REMOVAL EQUIPMENT AS NECESSARY.
3. CONTRACTOR SHALL SOUND CONCRETE TO LOCATE DETERIORATED AREAS (NOT ALL REPAIR AREAS EXTEND TO EDGE OF SLAB AS SHOWN). VERIFY REPAIR LOCATIONS IN FIELD WITH ENGINEER.
4. EXISTING EMBEDDED WELDED PLATE CONNECTIONS NOT SHOWN. DO NOT DAMAGE DURING CONCRETE REMOVALS. CLEAN / PAINT PRIOR TO PLACEMENT OF REPAIR MATERIAL (INCIDENTAL). RE-WELD AS NECESSARY PRIOR TO PLACING CONCRETE (INCIDENTAL)
5. MAXIMUM 15 LB CHIPPING HAMMERS OR AS DIRECTED BY ENGINEER TO MINIMIZE DAMAGE TO PRECAST DOUBLE TEE FLANGE AND TO PREVENT FULL-DEPTH REMOVAL OF OTHERWISE SOUND PRECAST FLANGE CONCRETE.

3.1D FLOOR REPAIR - PARTIAL DEPTH (CONCRETE WASHES)
(PS #6)



3.1A FLOOR REPAIR - PARTIAL DEPTH
(PS #1)

WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1076 Ph
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DRAWN BY: Author
CHECKED BY: Checker

SHEET TITLE:
REPAIR DETAILS

R-501

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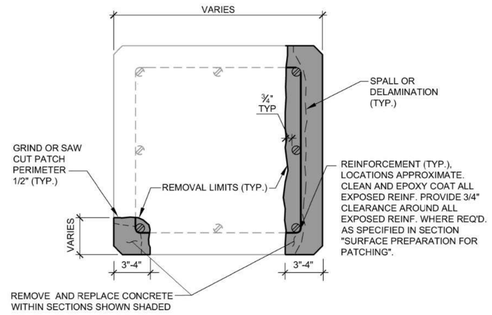
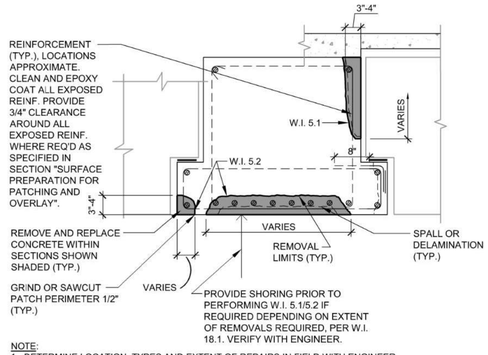


NOTES:
1. INSTALL SHORING AS REQUIRED BY ENGINEER PER W.I. 18.1.
2. COLUMN TIES WHICH HAVE LOST MORE THAN 15% OF ORIGINAL CROSS SECTIONAL AREA SHALL BE SUPPLEMENTED AS ENGINEER DIRECTS. VERIFY CONDITION WITH ENGINEER PRIOR TO PLACEMENT OF REPAIR MATERIAL.
3. NUMBER AND LOCATION OF REINFORCEMENT SHOWN MAY DIFFER FROM ACTUAL FIELD CONDITIONS.
4. REMOVE CONCRETE NO MORE THAN ¼ THE HEIGHT OF THE COLUMN ON MAXIMUM 2 SIDES OF COLUMN. INSTALL REPAIR MATERIAL AND ALLOW CURING TO ACHIEVE 75% DESIGN COMPRESSIVE STRENGTH BEFORE PROCEEDING WITH REMAINING REPAIR (IF REQUIRED).

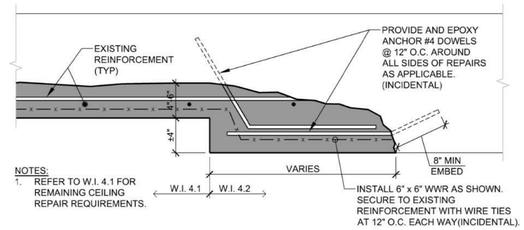
6.1 COLUMN REPAIR - PARTIAL DEPTH
(PS #1, PS #4, PS #5, PS #6)



NOTE:
1. DETERMINE LOCATION, TYPES AND EXTENT OF REPAIRS IN FIELD WITH ENGINEER.
2. POUR W.I. 5.1 REPAIRS FROM TOPSIDE IN COMBINATION WITH FULL-DEPTH FLOOR REPAIRS AS APPLICABLE BASED ON FIELD CONDITIONS. VERIFY IN FIELD WITH ENGINEER.
3. SEE SECTION 020010 FOR FURTHER REQUIREMENTS.

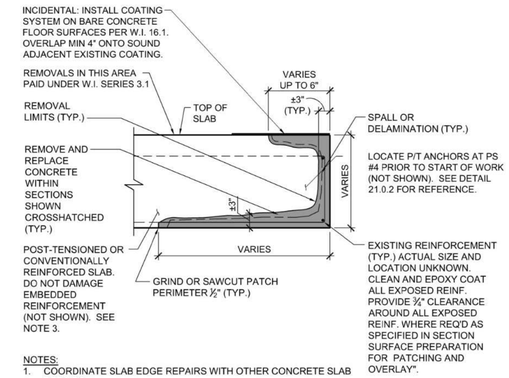
5.1 BEAM REPAIR-PARTIAL DEPTH (SIDE)
(PS #5)

5.2 BEAM REPAIR-PARTIAL DEPTH (UNDERSIDE)
(PS #5)



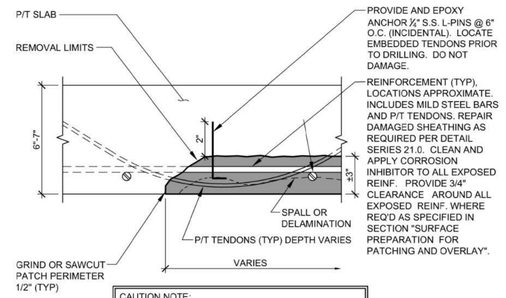
NOTES:
1. REFER TO W.I. 4.1 FOR REMAINING CEILING REPAIR REQUIREMENTS.

4.2 CEILING REPAIR - PARTIAL DEPTH AT DROP PANEL
(PS #1)



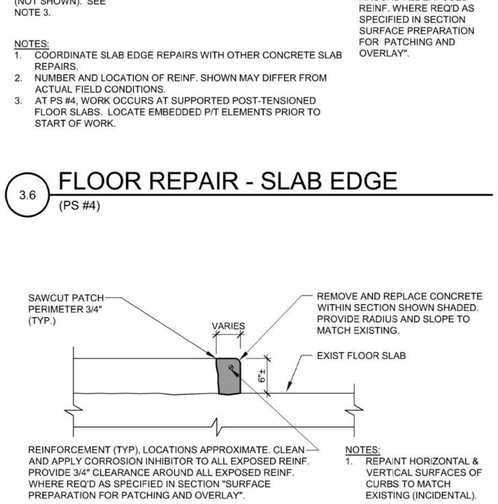
NOTES:
1. COORDINATE SLAB EDGE REPAIRS WITH OTHER CONCRETE SLAB REPAIRS.
2. NUMBER AND LOCATION OF REINF. SHOWN MAY DIFFER FROM ACTUAL FIELD CONDITIONS.
3. AT PS #4, WORK OCCURS AT SUPPORTED POST-TENSIONED FLOOR SLABS. LOCATE EMBEDDED P/T ELEMENTS PRIOR TO START OF WORK.

3.6 FLOOR REPAIR - SLAB EDGE
(PS #4)



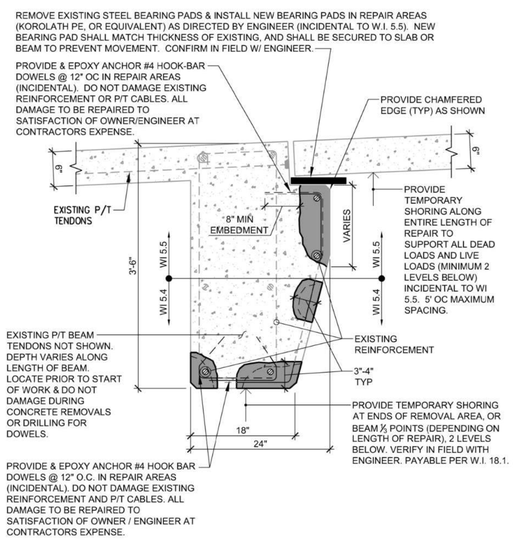
CAUTION NOTE:
THE FLOOR SLAB HAS POST-TENSIONING TENDONS. THESE TENDONS ARE NEAR THE FLOOR SURFACE AT SPALLS AND DELAMINATIONS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN SAW-CUTTING SO AS NOT TO DAMAGE EXISTING TENDONS OR TENDON SHEATHS. TENDONS MAY BREAK WITH EXPLOSIVE FORCE WHEN CUT. CHIPPING WITH 15 LB HAMMERS SHALL BE USED IN LIEU OF SAW-CUTTING NEAR SHALLOW TENDONS.

4.1B CEILING REPAIR-PARTIAL DEPTH (P/T)
(PS #4)



NOTES:
1. REPAINT HORIZONTAL & VERTICAL SURFACES OF CURBS TO MATCH EXISTING (INCIDENTAL).

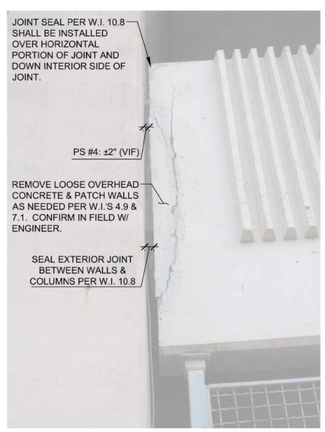
3.4 FLOOR REPAIR-CURBS
(PS #4)



NOTES:
1. CLEAN AND PREPARE REPAIR SURFACES PER REQUIREMENTS OF SECTION 025140.
2. CLEAN AND EPOXY COAT ALL EXPOSED EXISTING REINFORCEMENT.
3. ALLOW ENGINEER TO OBSERVE REPAIR CAVITIES & SUPPLEMENTAL REINFORCEMENT PRIOR TO INSTALLING FORMWORK.

5.4 BEAM REPAIR-PARTIAL DEPTH
(PS #4)

5.5 BEAM REPAIR-PARTIAL DEPTH AT HAUNCH
(PS #4)

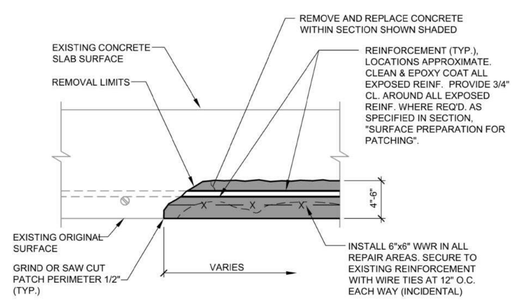


NOTES:
1. ACCESS TO THESE EXTERIOR FACADE ITEMS SHALL BE PER W.I. 1.6 AT PS #4. SEE SECTION 020010 FOR FURTHER REQUIREMENTS.
2. CONDITION AT PS #4 SHOWN.

4.9 REMOVE LOOSE CONCRETE & COAT
(PS #1, PS #4, PS #5, & PS #6)

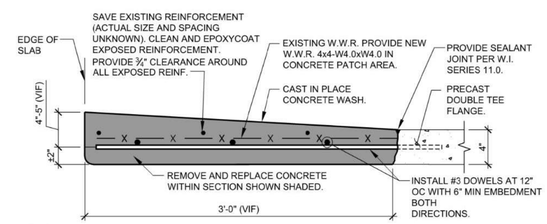
7.1 WALL REPAIR - PARTIAL DEPTH
(PS #4)

10.8 EXPANSION JOINT - PRECOMPRESSED VERTICAL SEAL
(PS #4) (ALTERNATE)



NOTES:
1. REMOVE ALL LIVE LOADS FROM FLOOR SLABS PRIOR TO START OF WORK..
2. LOCATE REPAIRS IN FIELD WITH ENGINEER.

4.1A CEILING REPAIR - PARTIAL DEPTH
(PS #1)



NOTES:
1. PROVIDE ½" SAWCUT AROUND PATCH PERIMETER. (TYP)
2. PERFORM REMOVALS IN A MANNER TO NOT CUT OR DAMAGE EXISTING EMBEDDED REINFORCEMENT. ADJUST REMOVAL EQUIPMENT AS NECESSARY.
3. VERIFY REPAIR LOCATIONS IN FIELD WITH ENGINEER.
4. EXISTING EMBEDDED WELDED PLATE CONNECTIONS NOT SHOWN. DO NOT DAMAGE DURING CONCRETE REMOVALS. CLEAN / PAINT PRIOR TO PLACEMENT OF REPAIR MATERIAL (INCIDENTAL). RE-WELD AS NECESSARY PRIOR TO PLACING CONCRETE (INCIDENTAL).
5. MAXIMUM 15 LB CHIPPING HAMMERS OR AS DIRECTED BY ENGINEER TO MINIMIZE DAMAGE TO SURROUNDING PRECAST DOUBLE TEE FLANGE AND TO PREVENT REMOVAL OF OTHERWISE SOUND CONCRETE.

3.3D FLOOR REPAIR - FULL DEPTH (CONCRETE WASHES)
(PS #6)

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525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1076 Ph
www.walkerconsultants.com

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DETROIT, MICHIGAN

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REVISIONS

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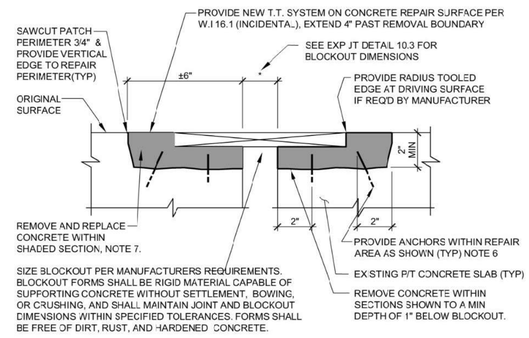
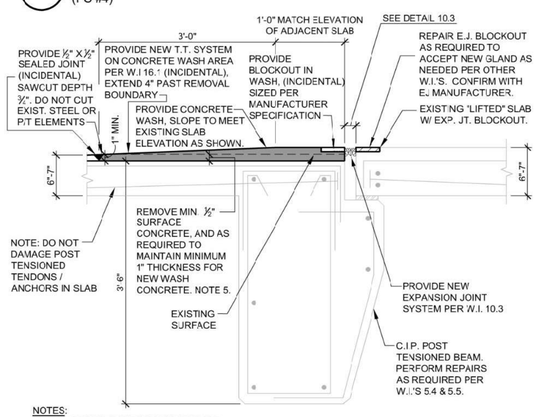


SIZE BLOCKOUT PER MANUFACTURERS REQUIREMENTS. BLOCKOUT FORMS SHALL BE RIGID MATERIAL CAPABLE OF SUPPORTING CONCRETE WITHOUT SETTLEMENT, BOWING, OR CRUSHING, AND SHALL MAINTAIN JOINT AND BLOCKOUT DIMENSIONS WITHIN SPECIFIED TOLERANCES. FORMS SHALL BE FREE OF DIRT, RUST, AND HARDENED CONCRETE.

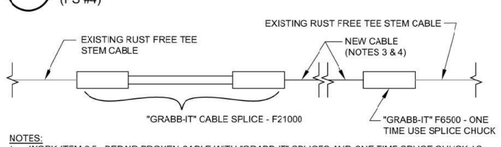
NOTES:
1. REMOVAL OF EXISTING EXPANSION JOINT SYSTEM (NOT SHOWN) IS INCIDENTAL TO THIS WORK.
2. MAINTAIN EXPANSION JOINT OPENING CLEAR OF DEBRIS. VERTICAL SURFACE MUST BE PLUMB AND SHALL NOT VARY MORE THAN 1/8" IN 6".
3. EDGE STRAIGHTNESS TOLERANCE SHALL NOT VARY MORE THAN 1/4" IN 20'-0"
4. METHOD OF FORMING JOINT SHALL BE APPROVED BY ENGINEER PRIOR TO CONCRETE PLACEMENT.
5. CONCRETE ELEVATIONS ON EACH SIDE OF JOINT SHALL MATCH.
6. INSTALL ANCHORS AT 6" O.C. (STAGGERED) ALONG ENTIRE LENGTH OF REPAIRS. ANCHORS SHALL BE S.S. ¼" "L"-PINS (EPOXY ANCHORED WITH 2" EMBEDMENT), OR CORROSION-RESISTANT NON-EXPANDING SCREW ANCHORS WITH 2" EMBEDMENT.
7. THIS WORK WILL OCCUR AS NEEDED ON ONE OR BOTH SIDES OF JOINTS. PAYMENT SHALL BE PER LINEAL FOOT ALONG ONE SIDE OF JOINT.

9.2 EXPANSION JOINT - NEW CONCRETE BLOCKOUT
(PS #4)



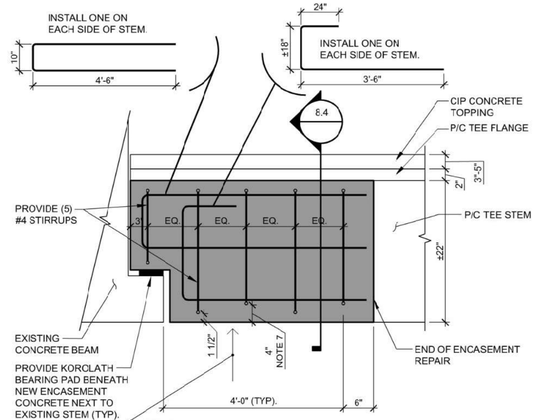
NOTES:
1. COORDINATE WITH WORK ITEM 10.3.
2. REMOVAL OF EXISTING EXPANSION JOINT SYSTEM INCIDENTAL. PERFORM IN MANNER TO NOT DAMAGE SOUND BLOCKOUTS TO REMAIN.
3. INSTALL NEW EXPANSION JOINT SYSTEM PER W.I. 10.3.
4. INSTALL NEW TRAFFIC TOPPING ON WASH AREA PER W.I. 16.1. (INCIDENTAL)
5. CONFIRM P/T TENDON AND ANCHOR LOCATIONS & DEPTH PRIOR TO START OF WORK. DO NOT DAMAGE OR UNDERMINE.
6. PREPARE SURFACE PER SECTION 025140. SEE SECTION 020010 FOR FURTHER INFORMATION.

9.1 EXPANSION JOINT - NEW CONCRETE WASH w/BLOCKOUT
(PS #4)



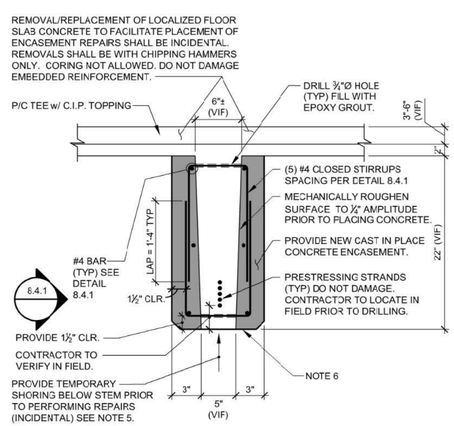
NOTES:
1. WORK ITEM 8.5: REPAIR BROKEN CABLE WITH "GRABB-IT" SPLICES AND ONE TIME SPLICE CHUCK AS SHOWN, ONLY AS DIRECTED BY ENGINEER BASED ON FINDINGS AT TEST OPENINGS PER WORK ITEM 8.2. W.I. 8.5 INCLUDES THE REMOVAL OF THE RUSTED/BROKEN SECTION OF PRESTRESSING CABLE AND SPLICING ON (1) "GRABB-IT" F21000 CABLE SPLICE TO ONE GOOD END OF EXISTING CABLE AND THE "GRABB-IT" F3500 ONE TIME USE SPLICE CHUCK TO THE OTHER GOOD END OF EXISTING CABLE WITH A SECTION OF NEW CABLE BETWEEN SPLICES. HAND TIGHTEN "GRABB-IT" SPLICE F21000 TO A TIGHT POSITION THEN WRENCH TIGHTEN WITH TORQUE WRENCH TO ACHIEVE 60% ULTIMATE STRENGTH PER MANUFACTURERS RECOMMENDATIONS.
2. MANUFACTURES PRECISION SURE-LOCK
   704 WEST SIMONDS
   DALLAS TEXAS 75159
   PHONE (972) 287-2390
3. INCLUDE 20 L.F. OF NEW CABLE AT EACH REPAIR LOCATION, INCIDENTAL TO THIS WORK ITEM.
4. REPLACEMENT CABLE TO BE 1/2"Ø 7 WIRE LOW RELAXATION STRAND MANUFACTURED IN ACCORDANCE WITH ASTM 416, GRADE 270.
5. SEE DETAIL 8.1 FOR RELATED CONCRETE WORK.

8.5 TEE STEM - CABLE REPAIR "GRABB-IT"
(PS #5)



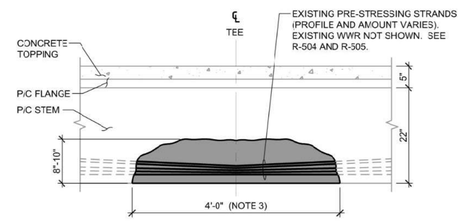
NOTES:
1. REMOVE ONLY SPALLED OR DETERIORATED STEM CONCRETE. DO NOT EXPOSE EMBEDDED REINFORCEMENT. PROCEED WITH CAUTION TO AVOID DAMAGE TO EMBEDDED PRESTRESSING TENDONS.
2. NO LOADS PERMITTED ON FLOOR ABOVE OR BELOW DURING REPAIRS.
3. SEE DETAIL 8.4 FOR FURTHER REQUIREMENTS.
4. ALL SHORING REQUIRED TO PERFORM REPAIRS SHALL BE PER REQUIREMENTS OF DETAIL 8.4.
5. VERIFY REPAIR IN FIELD WITH ENGINEER PRIOR TO START OF WORK.
6. VERIFY EXISTING DIMENSIONS IN FIELD PRIOR TO FABRICATING REINFORCEMENT.
7. STAGGER HEIGHT OF EVERY OTHER BOTTOM DRILLED HOLE AS SHOWN.

8.4.1 TEE STEM REPAIR - END ENCASEMENT
(PS #5)



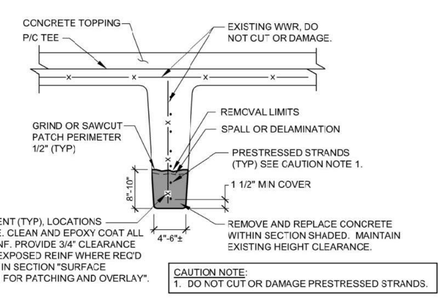
NOTES:
1. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
2. TEE STEM HAS EMBEDDED PRESTRESSING STRANDS. LOCATE PRIOR TO DRILLING HOLES. HOLES TO BE LOCATED AS SHOWN BUT WILL VARY BASED ON LOCATION OF EMBEDDED REINFORCEMENT.
3. SEE DETAIL 8.4.1 FOR FURTHER INFORMATION.
4. CONTRACTOR TO PLACE CONCRETE BY METHOD TO GUARANTEE CONSOLIDATION AND NO VOIDS/HONEYCOMBS.
5. NO LIVE LOADS SHALL BE APPLIED ABOVE DURING REPAIRS. TEMPORARY SHORING PROVIDED BENEATH STEMS SHALL REMAIN IN PLACE UNTIL REPAIR IS COMPLETED. CONTRACTOR TO SHORE SLAB AS SHOWN TO REMOVE ALL DEAD LOAD DURING REPAIRS. SHORING CAPACITY: PROVIDE MINIMUM 25KIP CAPACITY SHORING (2 LEVELS BELOW) UNDERNEATH BOTH STEMS OF AFFECTED DOUBLE TEE.
6. DO NOT EXTEND ENCASEMENT BELOW EXISTING BOTTOM SURFACE OF STEM.
7. CONTRACTOR SHALL OBTAIN ENGINEERS APPROVAL OF INSTALLED TEMPORARY SHORING PRIOR TO START OF REPAIRS.

8.4 TEE STEM REPAIR - END ENCASEMENT
(PS #5)



NOTES:
1. REMOVE AND REPLACE CONCRETE IN SECTION SHOWN SHADED AT CENTER OF TEE STEM IN MANNER TO NOT CUT OR DAMAGE ANY EMBEDDED REINFORCEMENT. ALLOW ENGINEER TO OBSERVE CAVITIES, AND PERFORM REPAIRS PER W.I. SERIES 8.0 AS DIRECTED BY ENGINEER.
2. CLEAN AND EPOXY-COAT ALL EXPOSED REINFORCING STEEL AS REQ'D IN SECTION "SURFACE PREPARATION FOR OVERLAY AND PATCHING".
3. W.I. 8.2 PAY UNIT: EA. LOCATION. INCLUDE UP TO 4 LF AT EACH PAY UNIT LOCATION AS SHOWN, BUT KEEP OPENINGS AS SMALL AS POSSIBLE (CONFIRM IN FIELD WITH ENGINEER). WHERE REQUIRED BY ENGINEER. EXTEND REMOVALS BEYOND REPAIR BOUNDARY SHOWN (PAYABLE PER L.F. UNDER W.I. 8.1).

8.2 TEE STEM REPAIR - TEST OPENING
(PS #5)



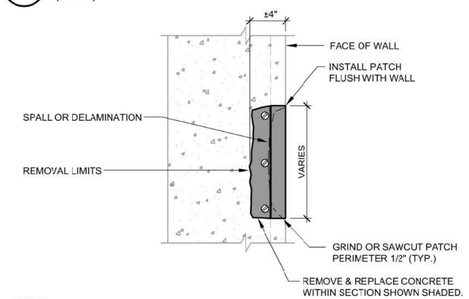
CAUTION NOTE:
1. DO NOT CUT OR DAMAGE PRESTRESSED STRANDS.

NOTES:
1. REVIEW CONCRETE REMOVAL REQUIREMENTS IN FIELD WITH ENGINEER PRIOR TO START OF REMOVALS.
2. AFTER REMOVALS ARE PERFORMED, ENGINEER SHALL OBSERVE CONDITION OF EMBEDDED STRANDS PRIOR TO PROCEEDING WITH WORK.

8.1 TEE STEM REPAIR - PARTIAL DEPTH
(PS #5)

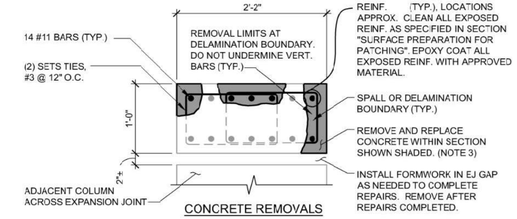
NOTES:
1. PHOTO SHOWS REPRESENTATIVE CONDITION AT PS #5.
2. REFER TO W.I. 7.1 FOR SIMILAR REQUIREMENTS AND PROCEDURE.
3. CLEAN AND PAINT EXPOSED STEEL TO FACILITATE BOND OF PATCH MATERIAL. INSTALL ½"x3" S.S. TAPCON SCREWS CONTINUOUS THROUGHOUT PATCHES, AND 18 GA SS TIE WIRE AROUND SCREW HEADS.

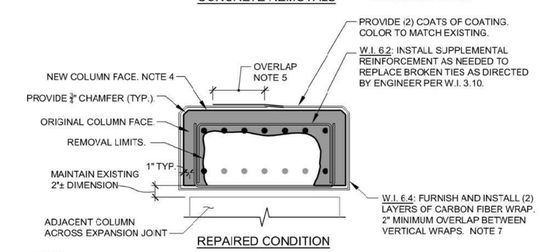
7.2 WALL REPAIR - GROUT POCKETS / CONNECTIONS
(PS #5)



NOTES:
1. TYPE AND LOCATION OF REINFORCEMENT WILL VARY. EPOXY COAT ALL EXPOSED REINFORCEMENT.

7.1 WALL REPAIR-PARTIAL DEPTH
(PS #4, PS #5, PS #6)





NOTES:
1. INSTALL SHORING AS REQUIRED BY ENGINEER PER W.I. 18.1.
2. REMOVE CONCRETE NO MORE THAN ½ THE HEIGHT OF THE COLUMN ON MAXIMUM 2 SIDES OF COLUMN. INSTALL REPAIR MATERIAL AND ALLOW CURING TO ACHIEVE 75% DESIGN COMPRESSIVE STRENGTH BEFORE PROCEEDING WITH REMAINING REPAIR (IF REQUIRED).
3. CONCRETE REMOVALS, PREPARATION, AND PATCHING MATERIAL, PER W.I. 6.2.
4. EXTEND COLUMN FACE AS NEEDED TO PROVIDE 2" COVER (TYP) V.I.F WITH ENGINEER PRIOR TO PLACEMENT.
5. PROVIDE CFRP OVERLAP PER MANUFACTURERS RECOMMENDATIONS (MINIMUM 12").
6. CONCRETE SHALL BE FULLY CURED PRIOR TO CFRP INSTALLATION.
7. W.I. 6.4: PAYMENT IS PER VERTICAL LF. INCIDENTAL TO THIS WORK IS TO INSTALL (2) COATS OF COATING SPECIFIED IN SECTION "WORK ITEMS"
8. W.I.'S 6.2, & 6.4 ARE PERFORMED AND PAID FOR SEPARATELY.

6.2 COLUMN REPAIR - PARTIAL DEPTH AT EXPANSION JOINT
(PS #1)

6.4 COLUMN REPAIR - CARBON FIBER WRAP
(PS #1)

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525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1076 Ph
www.walkerconsultants.com

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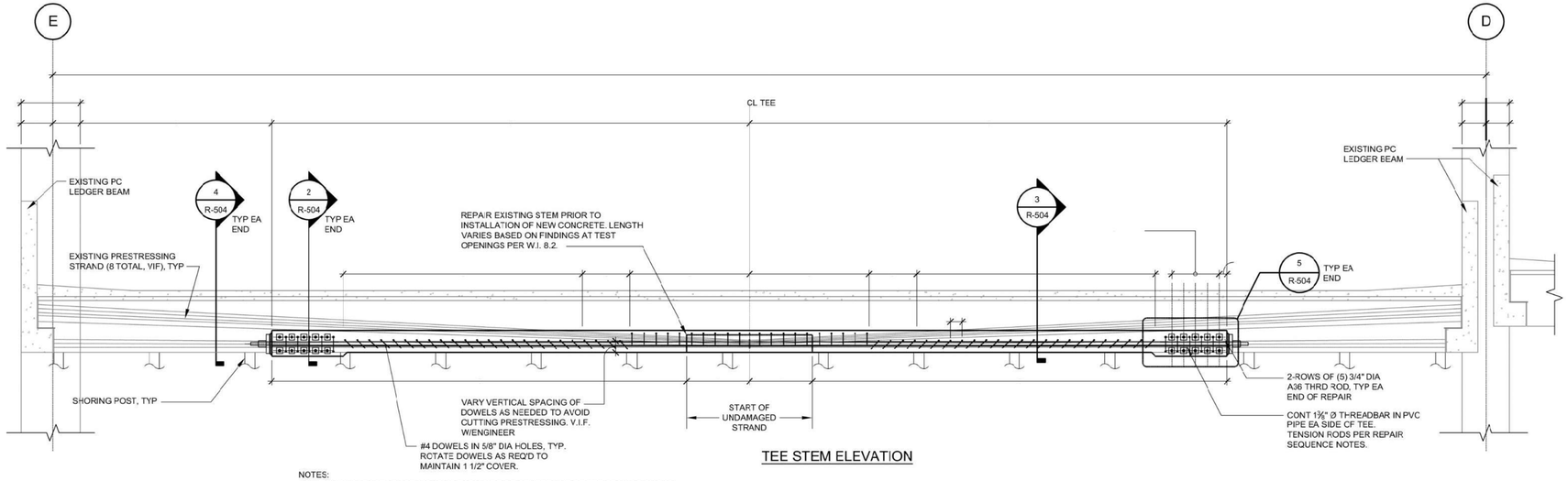
REPAIR SEQUENCE

1. REMOVE ALL PARKING LIVE LOADS FROM DOUBLE TEE (AND 3 LEVELS BELOW AS APPLICABLE) DURING REPAIRS. INSTALL TEMPORARY SHORING TO SUPPORT AN UNFACTORED DEAD LOAD OF 600 POUNDS PER FOOT AND ALL CONSTRUCTION LIVE LOADS. ADJUST AND SUPPLEMENT SHORING ALONG DAMAGED TEE SYSTEM TO MEET DEMAND. SHORING POSTS SHALL BE SPACED NO GREATER THAN 4'-0" OC. SHORING SHALL BE FOR 3 LEVELS MIN (OR TO GRADE LEVEL). SHORE/RESHORE LOADS ON CONCRETE SLAB-ON-GRADE SHALL BE DISTRIBUTED BY STEEL GRILLAGE OR TIMBER GRILLAGE SO AS NOT TO EXCEED 1500 PSF.
2. PERFORM TEST OPENINGS PER W.I. 8.2 AND LOCATE IN FIELD WITH ENGINEER. ALLOW ENGINEER TO OBSERVE CONDITION OF EXPOSED PRESTRESSING STRANDS. DO NOT PROCEED WITH WORK ITEM 8.3 UNLESS DIRECTED BY ENGINEER BASED ON CONDITIONS OBSERVED AT TEST OPENINGS PER W.I. 8.2.
3. SANDBLAST CORRODED PRESTRESSING STRANDS TO SSPC-SP6 STANDARD. EPOXY COAT STRANDS.
4. PLACE REPAIR CONCRETE TO REPLACE PORTION OF TEE STEM ALREADY REMOVED PER W.I. 8.2.
5. ENGAGE SPECIALIST TO PERFORM GROUND PENETRATING RADAR SCANNING TO LOCATE EMBEDDED STRANDS BEFORE PERFORMING ANY DRILLING, INCIDENTAL TO THIS WORK.
6. ROUGHEN CONCRETE TO 1/4" AMPLITUDE FOR BOND AT ENCASEMENT AREA.
7. JACK SHORING SUCH THAT MIDSPAN CAMBER OF DAMAGED TEE STEM MATCHES THAT OF THE AVERAGE CAMBER OF THE ADJACENT 3 TEE STEMS TO EACH SIDE. MEASURE CAMBER WITH SURVEYING EQUIPMENT.
8. LAY OUT HOLE LOCATIONS FOR DOWELS SUCH THAT PRESTRESSING STRANDS WILL NOT BE DAMAGED WHEN DRILLING. RECEIVE APPROVAL ON LAYOUT FROM ENGINEER PRIOR TO DRILLING.
9. DRILL AND SET IN EPOXY 3/4" DIA A36 THREADED RODS (HDG) AND DOWELS. FIELD BEND AND HOOK DOWELS WHERE REQUIRED AFTER EPOXY REACHES STRENGTH.
10. INSTALL 1¾"Ø THREAD BAR (ASTM A722, GR. 150) IN PVC PIPE, MILD REINFORCING STEEL, AND WIRE MESH.
11. PLACE CONCRETE.
12. AFTER CONCRETE REACHES 3,500 PSI MIN, INSTALL HDG ANCHOR PLATES AND NUTS AT A36 THREADED RODS. INSTALL ANCHOR PLATE, NUT AND GROUT PAD AT THREAD BAR.
13. ENGINEER SHALL BE ONSITE TO OBSERVE STRESSING OPERATIONS (CONTRACTOR TO PROVIDE ADVANCE NOTICE TO COORDINATE SCHEDULE).STRESS THREAD BAR WITH CALIBRATED EQUIPMENT, 5 KIPS AT A TIME ALTERNATING SIDES. STRESS EACH BAR TO A MAXIMUM TENSION OF 139.0 KIPS OR UNTIL THE TEE STEM LIFTS OFF SHORING POSTS. SNUG TIGHTEN NUTS AT THREADED RODS.
14. REMOVE SHORING, CLEAN WORK AREAS, AND REMOVE TEMPORARY SIGNAGE/BARRICADES.

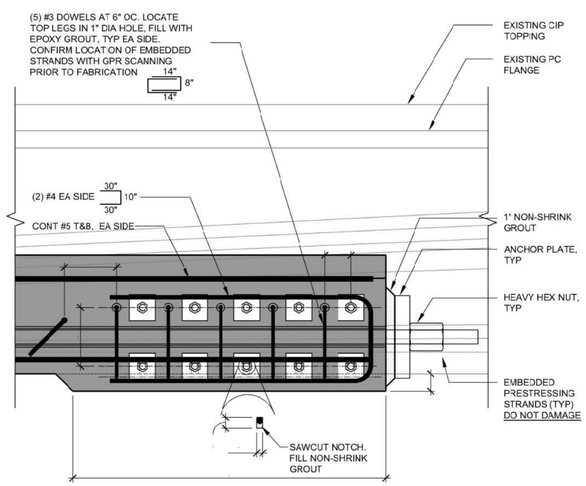


TEE STEM ELEVATION

NOTES:
1. MINIMUM CAST LENGTH IS 12'-0" EACH SIDE OF CENTERLINE OF TEE SPAN AS SHOWN. PAYMENT SHALL BE PER EACH REPAIR LOCATION OF 24'-0" IN LENGTH PER W.I. 8.3.
2. A LONGER CAST LENGTH MAY BE REQUIRED, DEPENDING ON THE CONDITION OF THE PRESTRESSING STRANDS REVEALED BY TEST OPENINGS. THE MINIMUM CAST LENGTH EACH SIDE OF CENTERLINE OF TEE SPAN SHALL BE THE LENGTH NECESSARY TO REACH THE END OF THE STRAND DAMAGE PLUS A MINIMUM LAP LENGTH OF 9'-0". PAYMENT BEYOND TOTAL REPAIR LENGTH OF 24'-0" SHALL BE PER EACH LINEAL FOOT PER W.I. 8.3A.
3. CAST LENGTH SHALL BE SYMMETRIC EACH SIDE OF CENTERLINE, AND EQUAL TO THE LONGER OF THE CAST LENGTHS AS SPECIFIED IN NOTE #2.
4. IF LENGTH OF DAMAGE TO STRAND ON ONE SIDE OF THE TEE CENTERLINE IS GREATER THAN 11'-0", NOTIFY ENGINEER FOR ALTERNATIVE REPAIR.

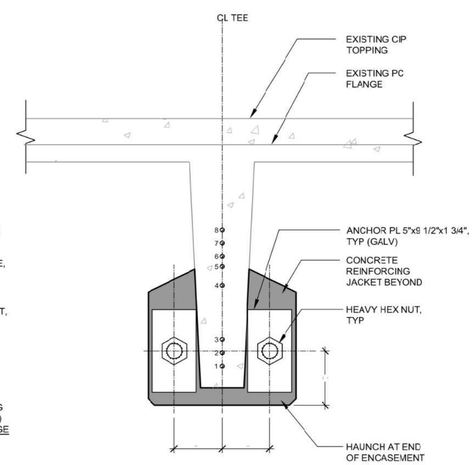
8.3 TEE STEM REPAIR - PARTIALLY ENCASED STEM

(PS #5)



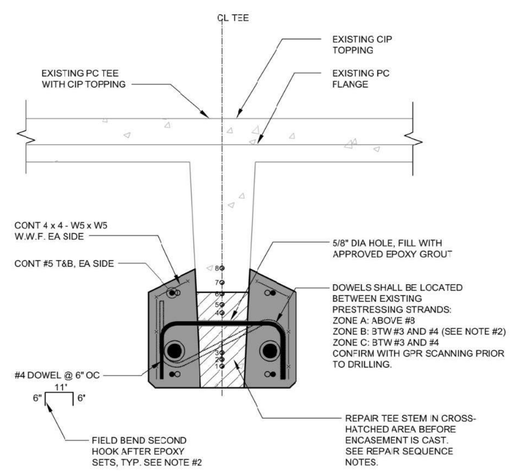
NOTES:
1. SEE DETAIL 2/R-507 FOR INFORMATION SHOWN AND NOT NOTED

5 REPAIR SECTION



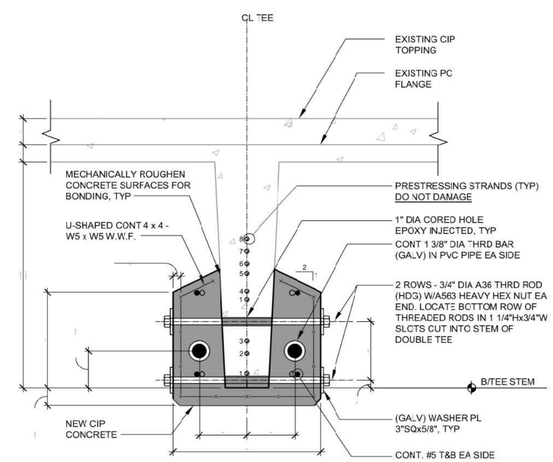
NOTES:
1. SEE DETAIL 2/R-507 FOR INFORMATION SHOWN AND NOT NOTED

4 REPAIR SECTION



NOTES:
1. SEE DETAIL 2/R-507 FOR INFORMATION SHOWN AND NOT NOTED
2. AT ZONE B, THE DOWEL MAY NEED TO BE INSTALLED AT AN ANGLE TO FIT BETWEEN STRANDS #3 AND #4 AND THE STEEL PIPE, AS INDICATED BY HIDDEN LINE. IN SUCH CASES, THE BAR WILL NEED TO BE FIELD BENT ON EACH END. ALTERNATE ANGLE OF ENTRY INTO EXISTING TEE AT CONSECUTIVE DOWELS. V.I.F. WITH ENGINEER.

3 REPAIR SECTION



NOTES:
1. SEE DETAIL 4/R-507 FOR INFORMATION SHOWN AND NOT NOTED.

2 REPAIR SECTION

WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1076 Ph
www.walkerconsultants.com

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REPAIR DETAILS - W.I. 8.3

R-504

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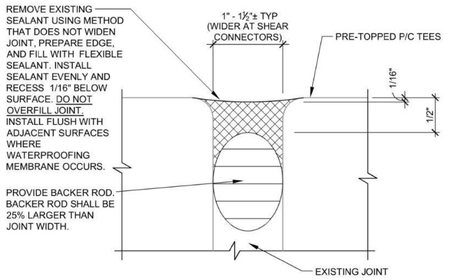
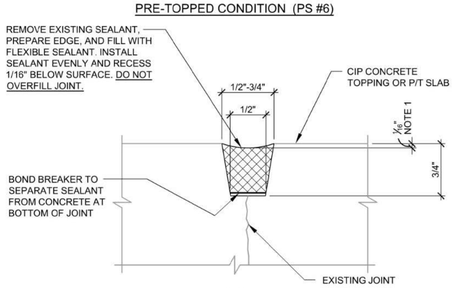
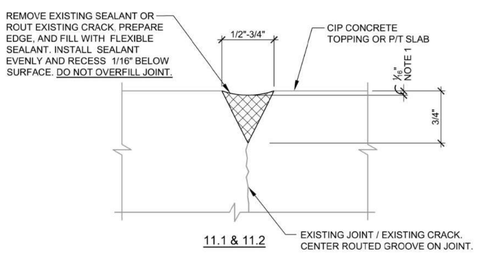


PRE-TOPPED CONDITION (PS #6)



11.2

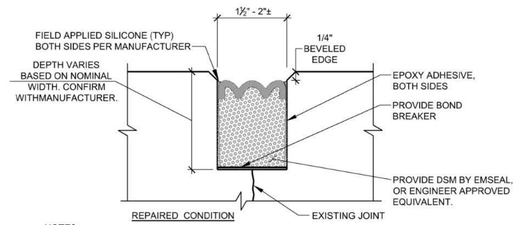


11.1 & 11.2

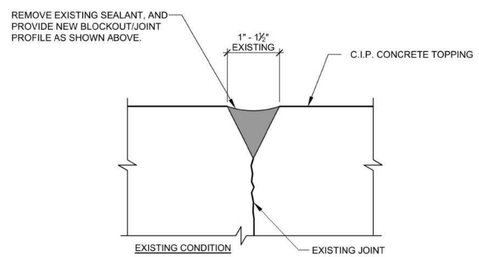
NOTES:
1. INSTALL SEALANT FLUSH WITH ADJACENT SURFACES WHERE TRAFFIC TOPPING IS TO BE INSTALLED.
2. AT LOCATIONS OF SCALED SURFACE REPAIRS (W.I. 16.9), SEALANT REMOVAL/REPLACEMENT SHALL COMPLY WITH EPOXY/SAND MANUFACTURERS REQUIREMENTS. ROUT JOINTS AND INSTALL SEALANT AFTER EPOXY/SAND MATERIAL HAS BEEN INSTALLED AND CURED.

11.1 SEAL FLOOR CRACKS
(PS #1, PS #4, PS #5, & PS #6)

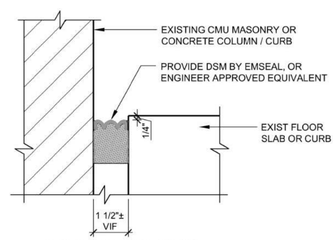
11.2 REPLACE JOINT SEALANTS
(PS #1, PS #4, PS #5, & PS #6)



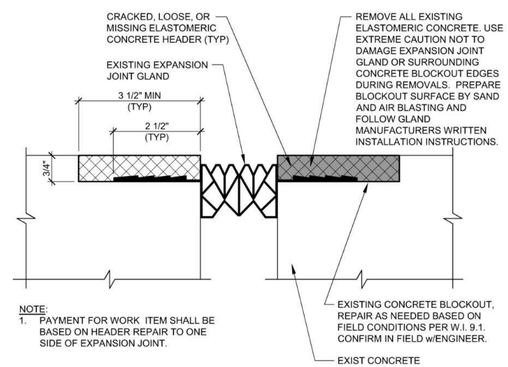
NOTES:
1. GRIND / REMOVE CONCRETE TO PROVIDE JOINT PROFILE SHOWN ABOVE, ACCEPTABLE TO RECEIVE JOINT SYSTEM PER MANUFACTURER (INCIDENTAL TO W.I. 10.6 AT PS #6).
2. REPAIR SPALLS / DELAMINATIONS ALONG JOINT PER W.I. SERIES 3.0.



SECTION AT SEALANT JOINT (PS #6)

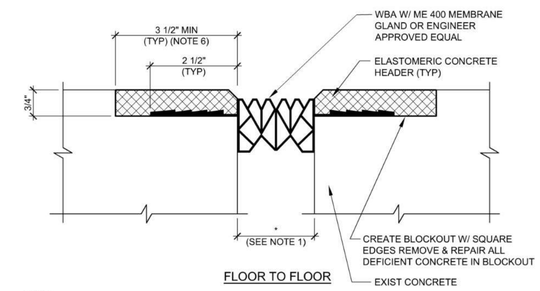


SECTION AT WALL (PS #4)



NOTE:
1. PAYMENT FOR WORK ITEM SHALL BE BASED ON HEADER REPAIR TO ONE SIDE OF EXPANSION JOINT.

10.4 EXPANSION JOINT - NOSING REPAIR
(PS #4)

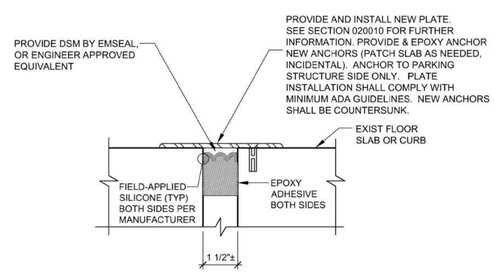


FLOOR TO FLOOR

NOTE:
1. CONTRACTOR SHALL, WITH MANUFACTURER, VERIFY FIELD INSTALLATION WIDTH BASED ON TEMPERATURE CONDITIONS. EXISTING BLOCKOUT WIDTHS VARY. CONTRACTOR TO VERIFY IN FIELD.
2. TOTAL ANTICIPATED JOINT MOVEMENT:
   - PS #4: 1¼"
3. PROVIDE SHOP DRAWINGS SHOWING ALL JOINT INTERSECTIONS, SPLICES, AND TERMINATIONS AS APPLICABLE. INCLUDE DETAIL AT AND AROUND COLUMNS. (SEE 10.3.1).
4. TURNS AND CORNERS SHALL BE FACTORY-MITERED.
5. GLAND SHALL BE TURNED UP INTO WALL AT ENDS TO PROMOTE POSITIVE DRAINAGE AND PROVIDE WATERTIGHT CONDITION. (INCIDENTAL).
6. EXISTING HEADER WIDTHS VARY. CONTRACTOR TO VIF. REPAIR AS NEEDED PER W.I. SERIES 9.0. CONFIRM WITH ENGINEER & JOINT MANUFACTURER PRIOR TO START OF WORK. ADDITIONAL ELASTOMERIC HEADER MATERIAL REQUIRED AT SOUND BLOCKOUTS WIDER THAN 3½" TO BE INCLUDED IN UNIT PRICE. NO EXTRAS ALLOWED.

10.3 EXPANSION JOINT-ELASTOMERIC CONCRETE EDGED
(PS #4)

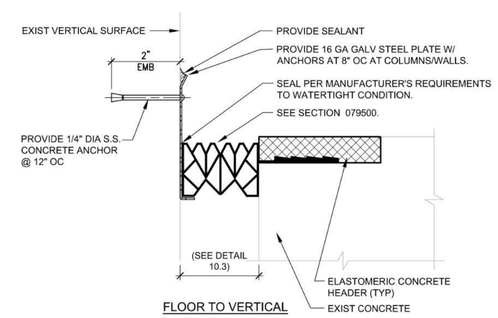
10.7 SEAL ROOF LEVEL JOINT BETWEEN BAYS
(PS #5)



SECTION AT STAIRTOWER DOORWAY
(PS #4 & #6)

NOTES:
1. SUBMIT SHOP DRAWING OF NEW PLATE FOR APPROVAL PRIOR TO ORDERING/FABRICATING.
2. COMPLY WITH JOINT MANUFACTURER'S WRITTEN RECOMMENDATIONS.
3. CONTRACTOR RESPONSIBLE TO DETERMINE SIZE OF JOINT WITH MANUFACTURER BASED ON INSTALLATION TEMPERATURE CONDITIONS.

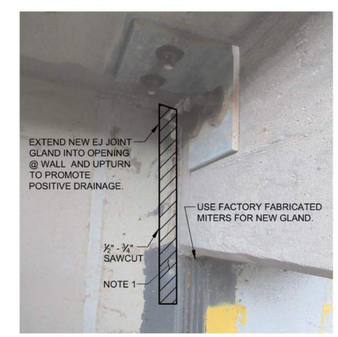
10.6 REPLACE STAIR TOWER ISOLATION JOINT
(PS #4 & PS #6)



FLOOR TO VERTICAL

NOTE:
1. GENERAL REQUIREMENTS SHOWN. SUBMIT SHOP DRAWINGS OF MANUFACTURER'S PROPOSED SYSTEM FOR APPROVAL.
2. SEE DETAIL 10.3 FOR REMAINING INFORMATION.
3. THIS OCCURS AT ALL COLUMNS / WALLS (TYP). CONTRACTOR TO VIF.

10.3.1 EXPANSION JOINT-ELASTOMERIC CONCRETE EDGED
(PS #4)



NOTES:
1. EXISTING SLAB IS POURED TIGHT TO COLUMN. REMOVE CONCRETE TO CREATE NEW BLOCKOUT TO EXTEND EJ SYSTEM AROUND COLUMN TO WALL. SEE DETAIL 10.3.1 FOR EJ DETAIL @ COLUMN.
2. P/T ANCHORS OCCUR ALONG EXPANSION JOINTS. LOCATE PRIOR TO SAWCUTTING OR CONCRETE REMOVALS. NOTIFY ENGINEER OF ANY DISCREPANCIES.
3. REVIEW FIELD CONDITIONS ONSITE WITH ENGINEER PRIOR TO START OF THIS WORK.

9.3 EXPANSION JOINT - NEW BLOCKOUT AT ENDS
(PS #4)

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525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1070 Ph
www.walkerconsultants.com

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2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
	03/24/2022	BIDDING AND CONSTRUCTION

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REPAIR DETAILS

R-505

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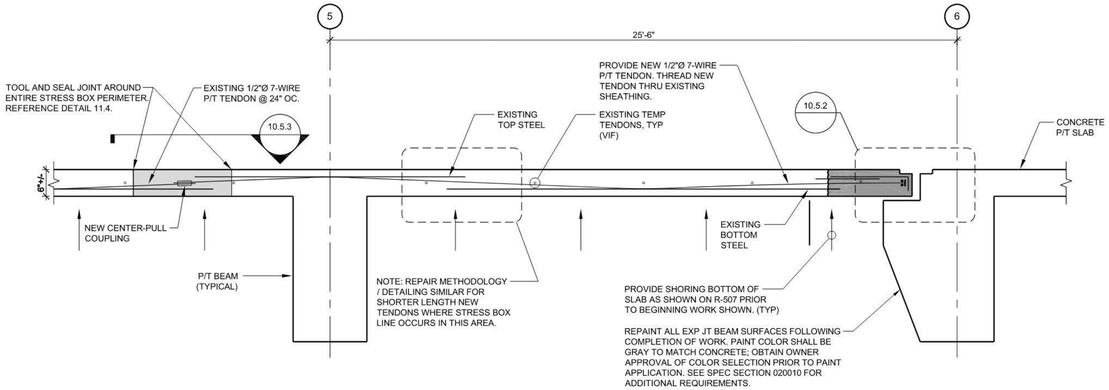
SHEET NOTES

1. UNLESS SPECIFICALLY NOTED AS A SEPARATE PAID ITEM, ALL WORK SHOWN ON DRAWING SHEETS R-506 & R-507 SHALL BE INCLUDED UNDER W.I. 10.5 AND PAID AS A UNIT PRICE FOR "EACH EXPANSION JOINT" UNDER W.I. 10.5. IN GENERAL, THIS INVOLVES DETENSIONING AND RE-BUILDING THE SLAB EDGE TO ALLOW FOR REPLACEMENT OF THE SLIDE BEARING SYSTEM. ADDITIONAL CONCRETE AND TENDON REPAIRS BEYOND WHAT ARE SHOWN ON DRAWING SHEET R-506 SHALL BE PAID FOR SEPARATELY VIA UNIT PRICE WORK ITEMS.
2. ORIGINAL DRAWINGS INDICATE ADD TENDONS ARE PRESENT, ALTHOUGH IT IS UNKNOWN IF OR WHERE THE ADD TENDONS MAY OCCUR. CONTRACTOR TO PERFORM GPR TESTING AND TEST OPENINGS PRIOR TO BEGINNING WORK TO LOCATE ALL SLAB POST-TENSIONING TENDONS. NOTIFY ENGINEER OF GPR AND TEST OPENINGS FINDINGS AND TENDON/ANCHOR LOCATIONS AND LAYOUT FOR REVIEW PRIOR TO START OF WORK. ADDITIONAL POST TENSIONING AND CONCRETE REPAIRS BEYOND WHAT IS SHOWN MAY BE REQUIRED, DEPENDING ON THE FINDINGS OF THE TEST OPENINGS.
3. CONTRACTOR SHALL COMPLETE WORK SHOWN IN FOLLOWING ORDER:
   a. INSTALL ALL SHORING AS SHOWN ON R-507.
   b. CONFIRM LOCATIONS OF ALL SLAB POST-TENSIONING TENDONS VIA GPR TESTING AND/OR TEST OPENINGS.
   c. REMOVE CONCRETE TO CREATE STRESS BOX OPENINGS IN THE PATTERN SHOWN ON THE PLAN VIEW. IF ADDITIONAL TENDONS ARE PRESENT BEYOND WHAT IS DETAILED (AS DISCOVERED IN STEP 3B), CONFIRM LOCATIONS OF STRESS BOX OPENINGS IN FIELD WITH ENGINEER TO ENSURE THAT ALL TENDONS CAN BE DE-TENSIONED.
   d. REMOVE CONCRETE SLAB FULL DEPTH ALONG EXPANSION JOINT EDGE AS SHOWN ON DETAIL 10.5.2. PERFORM CONCRETE REMOVALS AS NECESSARY ALONG BEAM BEARING LEDGE TO FULLY REMOVE EXISTING STEEL BEARING ASSEMBLY.
   e. REPAIR BEAM BEARING LEDGE AS SHOWN IN DETAIL 10.5.2, INCLUDING INSTALLATION OF NEW SLIP BEARING ASSEMBLY.
   f. REPLACE SLAB AS SHOWN ON DETAILS 10.5.1 & 10.5.2, INCLUDING INSTALLATION OF NEW POST-TENSIONING HARDWARE. ONLY THE STRESS BOXES SHALL REMAIN OPEN AFTER THIS STEP; PLACE BULKHEADS AS NECESSARY TO ENSURE STRESS BOXES DO NOT EXCEED SPECIFIED SIZE.
   g. STRESS TENDONS. IF ANY TENDONS DO NOT ACHIEVE THE CALCULATED THEORETICAL ELONGATION, ALLOW TO SIT FOR 24 HOURS AND RE-STRESS POST-TENSIONING TENDONS TO ENSURE DESIRED FORCE IS MAINTAINED.
   h. PLACE CONCRETE AT ALL STRESSING BOXES. SHORING MAY BE REMOVED ONCE ALL CONCRETE HAS REACHED REQUIRED COMPRESSIVE STRENGTH.
   i. ONCE ALL CONCRETE IS FULLY CURED, RECOAT TRAFFIC TOPPING AND INSTALL NEW EXPANSION JOINT. PAINT EXPANSION JOINT BEAM.
4. MINIMUM INITIAL CONCRETE STRENGTH AT TIME OF STRESSING SHALL BE 3,500 PSI.
5. STRESS BOXES ARE SHOWN AT ESTIMATED LOCATION WHERE TENDON IS AT SLAB MID-DEPTH. CONTRACTOR MAY SHIFT STRESS BOX OPENINGS ALONG TENDON RUN AS REQUIRED TO MAINTAIN CLEAR COVER FOR STRESSING HARDWARE.
6. WHERE EXISTING TRAFFIC COATING IS DAMAGED OR EXCESSIVELY WORN AS A RESULT OF CONTRACTOR'S OPERATIONS, CONTRACTOR SHALL BE RESPONSIBLE FOR RECOATING TRAFFIC TOPPING. NO EXTRAS ALLOWED.



NOTE:
BEAM REINF STEEL & P/T TENDONS NOT SHOWN. SEE ORIGINAL DRAWINGS

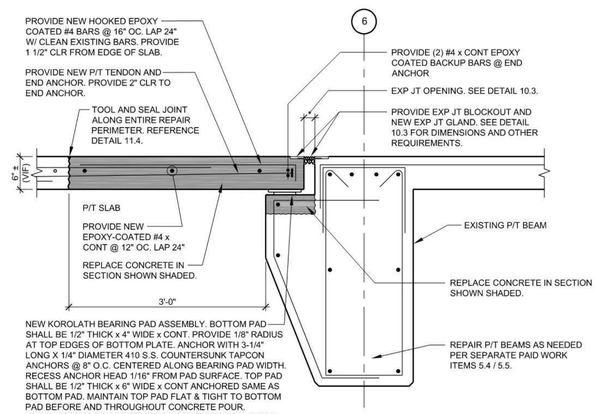
EXP JT - REPLACE STEEL BEARING ANGLES W/ SLIP BEARING SYSTEM

10.5.1 (SECTION AT NEW TENDON)

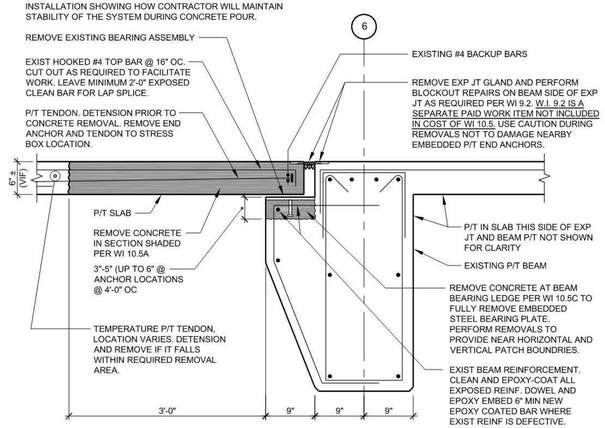
NOTES:
1. BEAM SHOWN IN THE PHOTO IS THE EXPANSION JOINT BEAM SUPPORTING LEVEL 2 FLOOR SLAB WHERE WI 10.5 OCCURS. CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE UTILITY LINES PASSING THROUGH THE BEAM (OR REPLACEMENT AT CONTRACTORS OPTION AT NO ADDITIONAL COST). CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF ANY DAMAGED LINES AT NO EXTRA COST TO OWNER.

UTILITIES AT LEVEL 2 EXPANSION JOINT BEAM

10.5.4



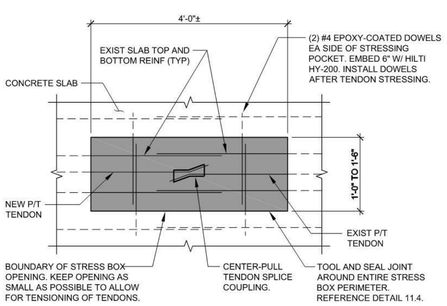
NEW CONSTRUCTION



DEMOLITION

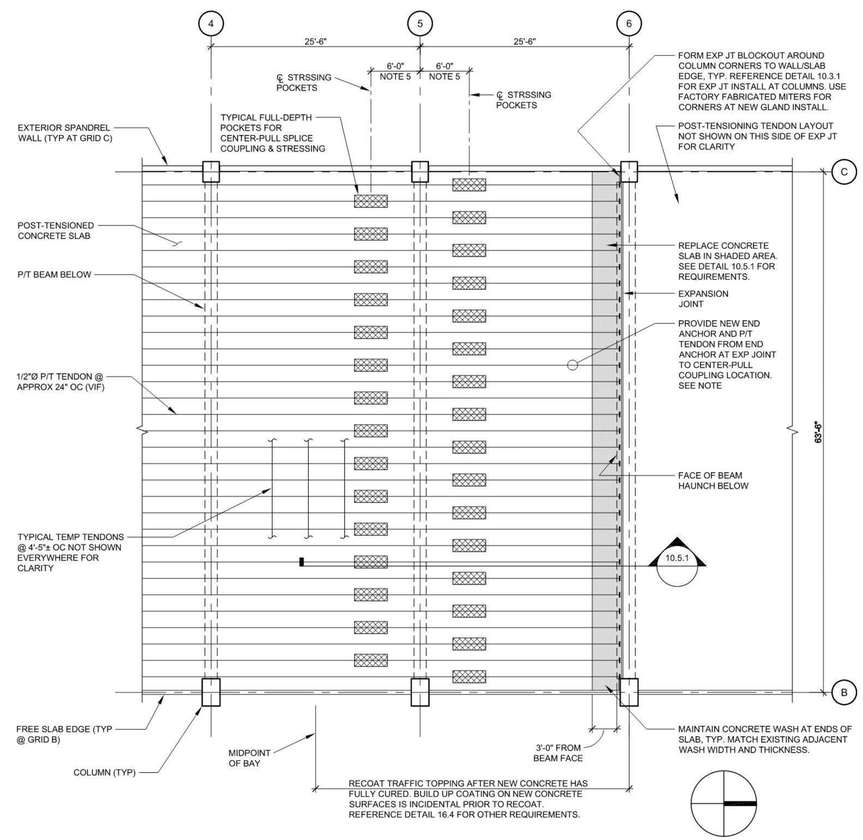
EXP JT - REPLACE STEEL BEARING ANGLES W/ SLIP BEARING SYSTEM

10.5.2 (SECTION AT SLAB REBUILD)



FLOOR REPAIR - PLAN @ STRESSING POCKET

10.5.3



EXP JT - REPLACE STEEL BEARING ANGLES W/ SLIP BEARING SYSTEM

10.5

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525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1076 Ph
www.walkerconsultants.com

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#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

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REPAIR DETAILS - W.I. 10.5

R-506

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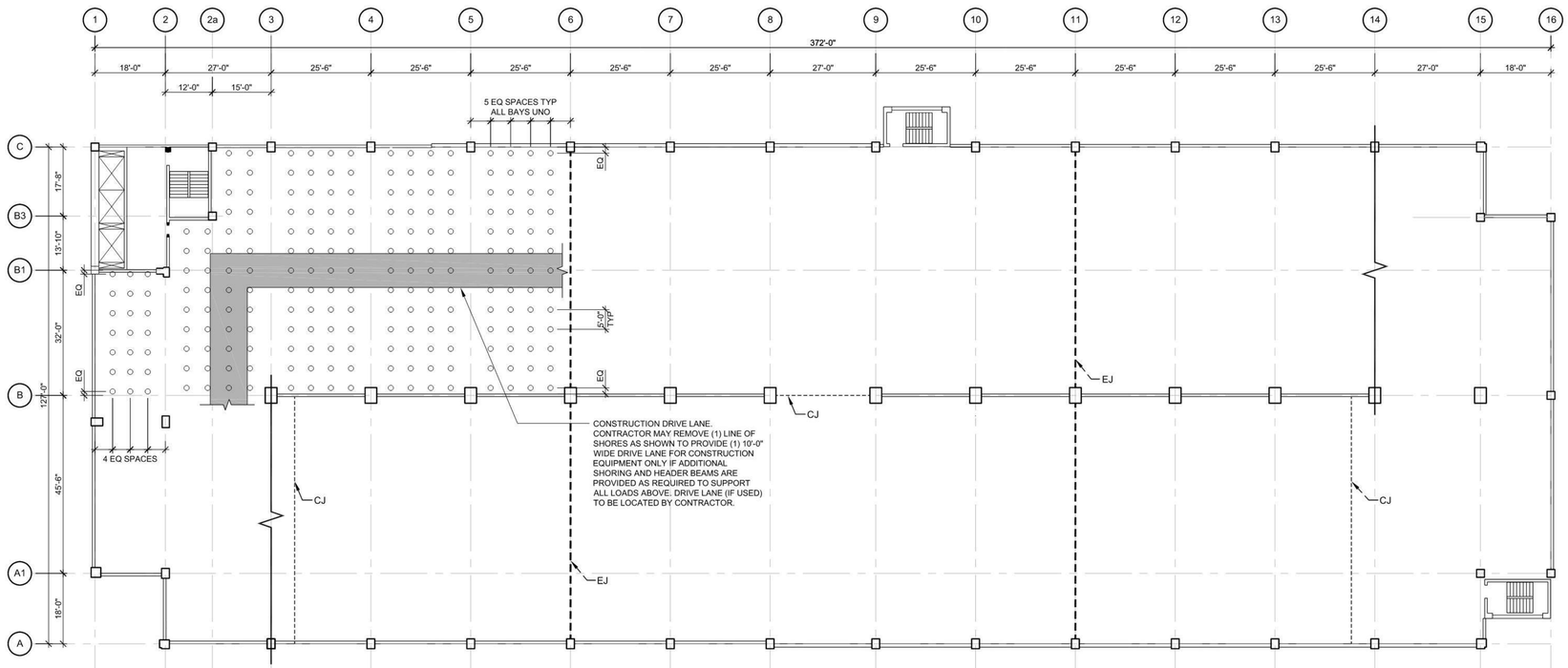
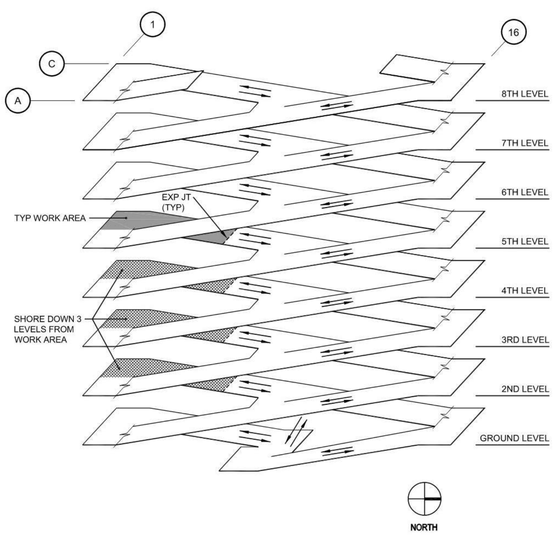
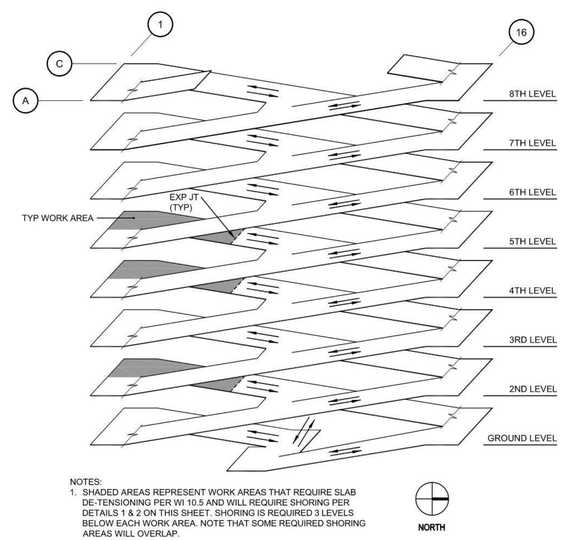


1 TYPICAL SHORING LAYOUT PLAN
(FOR WI 10.5)



2 ISOMETRIC VIEW
TYPICAL WORK AREA SHORING



NOTES:
1. SHADED AREAS REPRESENT WORK AREAS THAT REQUIRE SLAB DE-TENSIONING PER WI 10.5 AND WILL REQUIRE SHORING PER DETAILS 1 & 2 ON THIS SHEET. SHORING IS REQUIRED 3 LEVELS BELOW EACH WORK AREA. NOTE THAT SOME REQUIRED SHORING AREAS WILL OVERLAP.

3 ISOMETRIC VIEW
WORK AREAS REQUIRING SHORING

SHEET NOTES

1. INSTALL TEMPORARY SHORING PER REQUIREMENTS OF W.I. 10.5 AND AS REQUIRED ON THIS SHEET. TYPICAL TEMPORARY SHORING LAYOUT PER W.I. 10.5 SHOWN ON THIS PLAN APPLIES WHEREVER THE SLAB IS DETENSIONED AS PART OF W.I. 10.5. TEMPORARY SHORING SHALL BE INSTALLED MINIMUM (3) LEVELS BELOW W.I. 10.5 WORK AREAS; SEE 2/R-507.
2. SEE 3/R-507 FOR ISOMETRIC VIEW OF ALL WORK AREAS REQUIRING TEMPORARY SHORING AS SHOWN.
3. TEMPORARY SHORING MUST BE INSTALLED PRIOR TO POST-TENSIONED TENDON DE-TENSIONING AT START OF CONCRETE DEMOLITION WORK.
4. SHORING SHOWN IS MINIMUM REQUIREMENTS AND IS BASED ON 25 PSF CONSTRUCTION LIVE LOAD AT ONE LEVEL PLUS DEAD LOAD AT ONE LEVEL. AT CONTRACTOR'S OPTION, ADDITIONAL SHORING TO SUPPORT CONSTRUCTION LIVE LOADS ABOVE 25 PSF SHALL BE DESIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER. NO EXTRA PAYMENT SHALL BE PROVIDED FOR THIS ADDITIONAL SHORING.
5. REFER TO R-002 "PHASING PLANS AND NOTES" FOR COORDINATION OF WORK.
6. UNFACTORED DESIGN LOAD PER SHORE INCLUDING DEAD LOAD AND CONSTRUCTION LIVE LOAD STATED IN NOTE 4 IS 5,000 LB AT REQUIRED SHORE HEIGHT (TYP.)
7. SHORES ON CONSECUTIVE LEVELS SHALL BE PLUMB AND CONCENTRICALLY LOADED WITH SHORES ABOVE AND BELOW.
8. INSTALL SHORES TIGHT TO FLOOR AND CEILING. SECURE AT TOP AND BOTTOM TO MAINTAIN REQUIRED POSTIONING / STABILITY.
9. DO NOT REMOVE SHORES PRIOR TO RE-STRESSING FLOOR SLAB.

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525 Avis Drive, Suite 1
Ann Arbor MI 48108
734.769.0096
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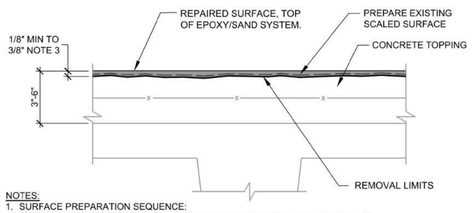
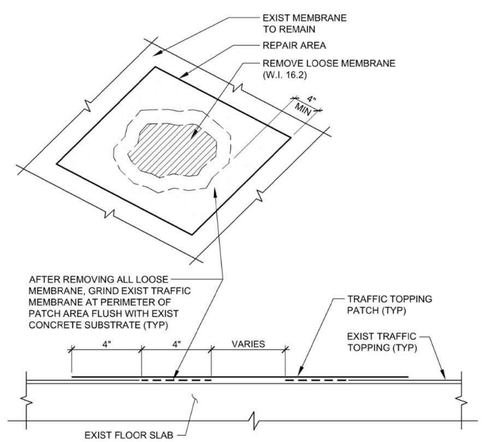


NOTES:
1. SURFACE PREPARATION SEQUENCE:
   a) SCARIFY EXISTING SCALED SURFACE TO REMOVE LOOSE / DELAMINATED / DETERIORATED CONCRETE.
   b) SHOT-BLAST SURFACE PER MANUFACTURER'S REQUIREMENTS. REVIEW PREPARED SURFACE TO VERIFY ALL LOOSE MATERIAL HAS BEEN REMOVED. SANDBLAST / WATER BLAST TO REMOVE LAITANCE IF REQUIRED BY MANUFACTURER.
2. PERFORM ADDITIONAL SURFACE PREPARATION AS RECOMMENDED BY MANUFACTURER PRIOR TO APPLICATION (INCIDENTAL).
3. INSTALL IN MULTIPLE LIFTS AS NECESSARY TO COMPLY WITH MANUFACTURER'S RECOMMENDATIONS.

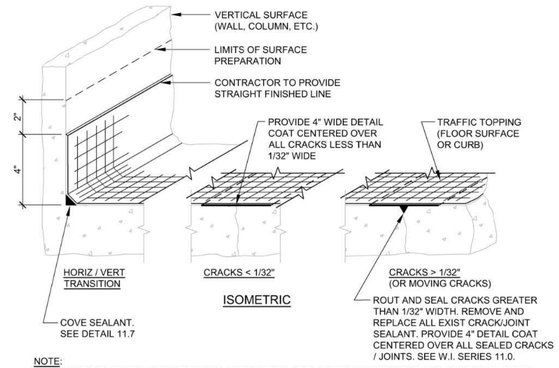
16.9 SCALED SURFACE REPAIR (EPOXY/SAND)
(PS #5 & PS #6)



NOTE:
1. W.I. 16.2: INCLUDES REMOVAL OF COMPLETE EXISTING COATING SYSTEM TO BARE CONCRETE IN LARGE AREAS, AND INSTALLATION OF NEW COATING SYSTEM (PRIMER, BASE COAT, INTERMEDIATE COAT(S), TOP COAT) TO MATCH THICKNESS OF EXISTING COATING.
2. W.I. 16.3: INCLUDES INSTALLATION OF PRIMER, BASE COAT, AND INTERMEDIATE COAT(S) TO BUILD UP SYSTEM ON BARE CONCRETE TO MATCH THICKNESS OF ADJACENT SYSTEM, PRIOR TO RECOATING PER ALT. W.I. 16.4.

16.2.1 TRAFFIC TOPPING - REPLACE EXISTING SYSTEM
(PS #1 & PS #4)

16.3 TRAFFIC TOPPING - REPAIR
(PS #1, PS #4, PS #5 & PS #6) (INCIDENTAL)

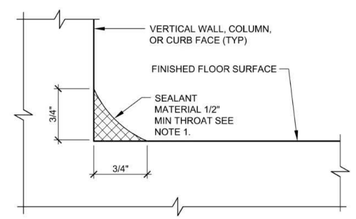


NOTE:
1. QUANTITIES BASED ON HORIZONTAL APPLICATION AREA. VERTICAL DETAILING AND ADDITIONAL DETAIL COAT OVER CRACKS ARE INCIDENTAL TO THIS WORK.
2. W.I. 16.1 REQUIRES INSTALLING NEW COATING SYSTEM ON BARE CONCRETE SURFACES.
3. W.I. 16.2 INCLUDES REMOVAL OF EXISTING COATING SYSTEM TO BARE CONCRETE, AND INSTALLATION OF NEW COATING SYSTEM PER GENERAL REQUIREMENTS OF W.I. 16.1.
4. W.I. 16.4 INCLUDES INSTALLING NEW INTERMEDIATE & TOP COATS ON PREPARED EXISTING COATING.
5. REFER TO SECTION 020010 FOR SPECIFIC REQUIREMENTS.

16.1 TRAFFIC TOPPING- NEW SYSTEM
(PS #4, PS #5, & PS #6) (BASE BID & ALTERNATE)

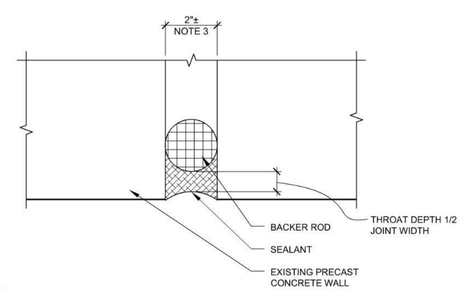
16.2 TRAFFIC TOPPING - REPLACE EXISTING SYSTEM
(PS #1, & PS #4) (ALTERNATE)

16.4 TRAFFIC TOPPING - RECOAT
(PS #1, PS #4, & PS #5)



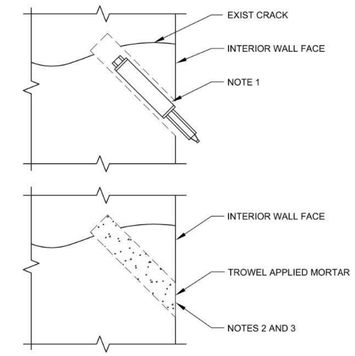
NOTES:
1. REMOVE EXISTING COVE SEALANT MATERIAL (INCIDENTAL). PREPARE SURFACE PER SPECIFICATIONS.

11.7 COVE SEALANT
(PS#1, PS#4, PS#5, & PS#6)



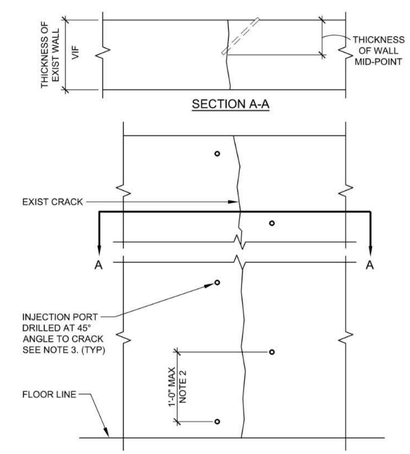
NOTES:
1. CLEAN JOINT SUBSTRATE BY SAND & AIR BLASTING.
2. PREPARE AND PRIME SEALANT CAVITY & INSTALL SEALANT ACCORDING TO SEALANT MANUFACTURER'S RECOMMENDATIONS.
3. JOINT WIDTHS VARY. CONTRACTOR TO VERIFY IN FIELD.
4. APPLIES TO BOTH VERTICAL AND HORIZONTAL JOINT CONDITIONS.
5. MULTIPLE CUSTOM COLORS REQUIRED. COLORS TO BE AS SELECTED BY OWNER BASED ON MOCKUPS.

11.6 SILICONE SEALANTS
(PS #5, & PS #6)



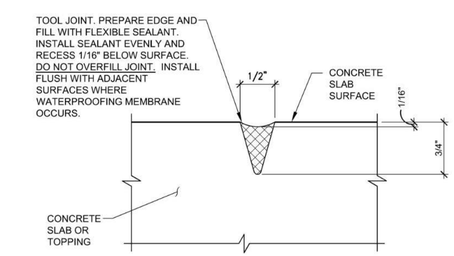
NOTES:
1. INSERT PACKERS INTO CLEAN DRILLED HOLE SO THAT TOP OF RUBBER SLEEVE IS BELOW CONCRETE SURFACE.
2. AFTER GROUTING PROCEDURE IS COMPLETE, REMOVE PACKER AND FITTINGS FROM HOLE AND REMOVE EXCESS GROUT FROM FACE OF WALL.
3. PATCH REMAINING HOLES WITH TROWEL APPLIED MORTAR. FILL ENTIRE HOLE FLUSH WITH SURFACE OF THE WALL TO MATCH THE EXISTING CONDITION.

11.5.1 EPOXY INJECTION
(PS #5 & PS #6)



NOTES:
1. CLEAN SURFACE OF WALL TO IDENTIFY CRACK. DRILL INJECTION PORT AT A 45° ANGLE TO INTERSECTCRACK AT THE MID-DEPTH OF THE WALL.
2. STAGGER DRILL HOLES FROM ONE SIDE OF THE CRACK TO THE OTHER AT A MAXIMUM 12" OC SPACING.
3. FLUSH DRILL HOLES w/CLEAN WATER. SEE DETAIL 11.5.1 FOR ADDITIONAL INFORMATION.

11.5 EPOXY INJECTION
(PS #5 & PS #6)



NOTES:
1. MATCH EXISTING JOINTS LAYOUT. TOOLING AND SEALING CONTROL JOINTS IS INCIDENTAL TO ALL CONCRETE REPAIR WORK, AND IS NOT A SEPARATE PAY ITEM.
2. CONTROL JOINT (C.J.) MUST BE TOOLED IN PLASTIC CONCRETE AND DIMENSIONS AS DETAILED WILL BE MAINTAINED IN SET CONCRETE. SAWCUTTING OF CONTROL JOINT IN HARDENED CONCRETE WILL NOT BE PERMITTED.

11.4 TOOL AND SEAL CONTROL JOINTS
(FOR REFERENCE ONLY)
(PS#1, PS#4, PS#5, & PS#6) (INCIDENTAL)

WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor MI 48108
734.663.1070 Ph
www.walkerconsultants.com

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2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK	DATE	DESCRIPTION
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REVISIONS

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SHEET TITLE:
REPAIR DETAILS

R-508

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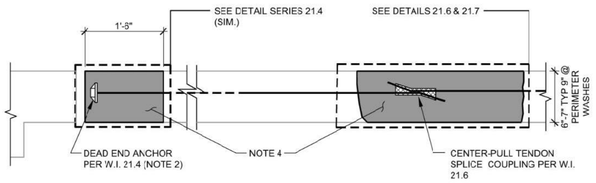
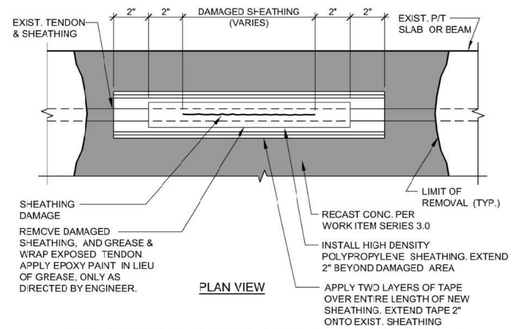


NOTES:
1. THE COMBINATION OF TENDON REPAIRS SHOWN ABOVE TYPICALLY OCCUR WHEN TENDON FAILURE OCCURS AT THE END ANCHOR ONLY OR WHEN TENDON FAILURE OCCURS AT THE END ANCHOR AND AT ANOTHER LOCATION ALONG THE SAME TENDON.
2. STRESSING OCCURS AT CENTER-PULL COUPLING PER W.I. 21.6.
3. NEW TENDON LENGTH BEYOND 10'-0" SHALL BE PAID FOR UNDER W.I. 21.9 IF REQUIRED.
4. REMOVE & REPLACE CONCRETE WITHIN SECTIONS SHOWN SHADED (PERFORMED & PAID FOR UNDER W.I. SERIES 3.0).

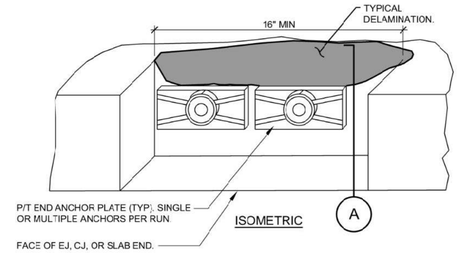
21.4.2 21.6.1 P/T TENDON END ANCHORAGE (DEAD) TENDON SPLICE COUPLING (CENTER-PULL)

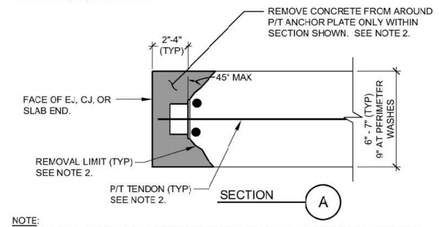
(FOR REFERENCE ONLY) (PS #4)



21.2 PROTECT EXPOSED P/T TENDON

(INCIDENTAL) (PS #4)

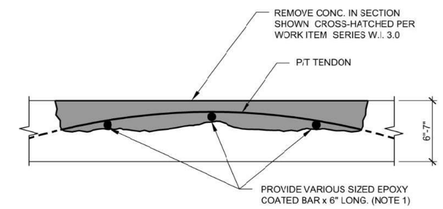




NOTE:
1. USE EXTREME CAUTION REMOVING CONCRETE AROUND TENDON ANCHOR. MAXIMUM 15# CHIPPING HAMMERS SHALL BE USED IN REMOVING CONCRETE. MULTIPLE/BUNDLED TENDON ANCHORS MAY BE ENCOUNTERED.
2. IF DELAMINATIONS EXTEND BEYOND REMOVAL LIMITS SHOWN, P/T TENDON SHALL BE DE-TENSIONED PRIOR TO REMOVALS.

21.0.2 CONCRETE REMOVALS AT P/T TENDON ANCHORAGE

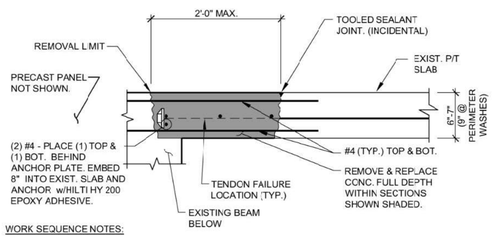
(PS #4) (FOR REFERENCE ONLY)



NOTE:
1. WHEN PERFORMING CONCRETE REMOVALS ALONG P/T TENDON, PROVIDE TENDON SUPPORTS AS SHOWN AT 2'-0" O.C. MAX. TO MAINTAIN TENDON PROFILE (INCIDENTAL).

21.0.1 CONCRETE REMOVALS AT P/T CABLE

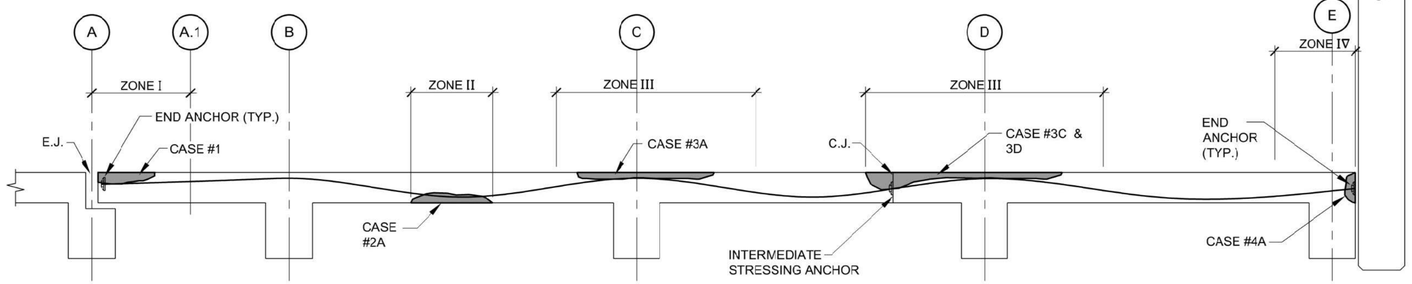
(PS #4) (FOR REFERENCE ONLY)



WORK SEQUENCE NOTES:
1. VERIFY TENDON FULLY DETENSIONED
2. REMOVE AND REPLACE CONCRETE FULL DEPTH PER W.I. 3.3B.
3. INSTALL NEW END ANCHOR AND REINFORCEMENT.
4. PLACE CONCRETE AND ALLOW ADEQUATE CONC. STRENGTH GAIN PRIOR TO STRESSING.
5. STRESS P/T TENDON. (NOT INCLUDED IN W.I. 21.4).

21.4.1 P/T TENDON END ANCHORAGE (DEAD)

(FOR REFERENCE ONLY) (PS #4)



ZONE I - END ANCHOR REPAIR @ EXPANSION JOINT

CASE 1:
A. REPLACE END ANCHOR (DEAD), AND TENDON SPLICE REPAIR.
B. SEE DETAIL SERIES 21.4 & 21.6.

ZONE II - TENDON REPAIR @ SLAB SOFFIT

CASE 2A:
A. SINGLE COUPLING AND TENDON SPLICE REPAIR.
B. SEE DETAIL SERIES 21.6 & 21.7.

ZONE III - TENDON REPAIR OVER BEAMS

CASE 3A:
A. SINGLE OR DOUBLE COUPLING AND TENDON SPLICE REPAIR.
B. SEE DETAIL SERIES 21.6, 21.7, & 21.8.

CASE 3C:
A. SINGLE COUPLING TENDON SPLICE WITH CENTER-PULL TENDON SPLICE COUPLING. (KEEP INTERMEDIATE ANCHOR)
B. SEE DETAIL SERIES 21.6, & 21.7.

CASE 3D:
A. SINGLE COUPLING TENDON SPLICE WITH CENTER-PULL TENDON SPLICE COUPLING. (REMOVE INTERMEDIATE ANCHOR)
B. SEE DETAIL SERIES 21.6 & 21.7.

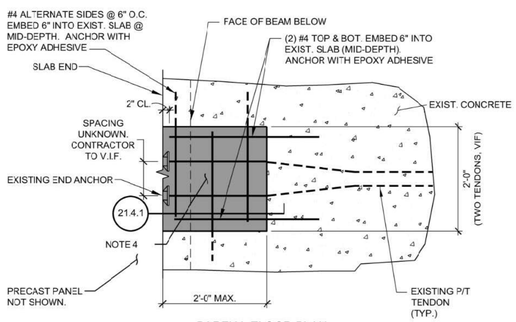
ZONE IV - END ANCHOR REPAIR AT WALL/BEAM

CASE 4A:
A. REPLACE END ANCHOR (DEAD) AND TENDON SPLICE REPAIR.
B. SEE DETAIL SERIES 21.4, & 21.6.

NOTES:
1. TYPICAL CONCRETE DELAMINATIONS SHOWN IN CROSSHATCHED AREAS ABOVE.
2. SECTION ABOVE SHOWS TYPICAL P/T TENDON FAILURE AREAS ("ZONES") . CORRESPONDING REPAIR SCENARIOS ("CASES") ARE DESCRIBED ABOVE AND ASSOCIATED REPAIR DETAILS ARE REFERENCED.
3. A COMBINATION OF REPAIR "CASES" MAY BE REQUIRED TO REPAIR A TENDON DEPENDING ON LOCATION AND NUMBER OF FAILURES ALONG A TENDON RUN.
4. SEE "P/T REPAIR GENERAL NOTES" FOR FURTHER REQUIREMENTS.

21.0 P/T SLAB SECTION WITH TYPICAL TENDON FAILURE CONDITIONS AND REPAIR SCENARIOS

(PS #4)



PARTIAL FLOOR PLAN

NOTES:
1. THIS DETAIL TYPICALLY APPLIES WHEN A TENDON FAILURE OCCURS NEAR AN EXISTING END ANCHOR AND STRESSING OF THE TENDON WILL OCCUR AT A DIFFERENT LOCATION AS DETERMINED BY ENGINEER. SEE DETAIL 21.4.1 FOR ADDITIONAL INFORMATION.
2. THIS REPAIR WILL BE PERFORMED IN COMBINATION WITH W.I. 21.6 FOR STRESSING OF THE TENDON.
3. ANCHOR INSTALLATION SHALL BE AT ORIGINAL TENDON ANCHOR LOCATION.
4. CONCRETE REPAIR WORK SHALL BE PERFORMED & PAID FOR UNDER W.I. SERIES 3.0. SUPPLEMENTAL REINFORCEMENT SHOWN SHALL BE INCIDENTAL TO THIS WORK.

21.4 P/T TENDON END ANCHORAGE (DEAD)

(PS #4)

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525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1076 Ph
www.walkerconsultants.com

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CUT 1" ISOLATION JOINT BETWEEN TOP OF BLOCK WALL AND BOTTOM OF CONCRETE BEAM. PREPARE AND SEAL ISOLATION JOINT WITH SILICONE SEALANT. FOR BIDDING PURPOSES, APPROXIMATELY 10 LF OF ISOLATION JOINT TO BE SEALED IN THIS LUMP SUM BID.

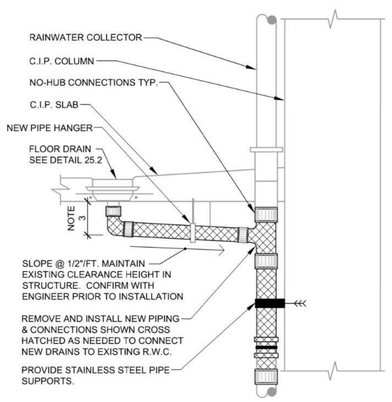
PROTECT OR REPAIR EXISTING ELECTRICAL AND FIRE SUPPRESSION LINES DURING BLOCK REPAIR WORK, INCIDENTAL.

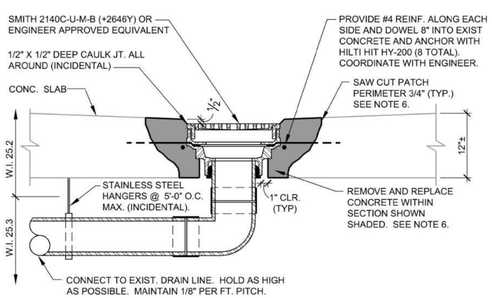
TUCKPOINT CRACKED MORTAR JOINTS. REFERENCE DETAIL 35.1 FOR SIMILAR REQUIREMENTS. FOR BID PURPOSES, CONTRACTOR SHALL INCLUDE TUCKPOINTING OF UP TO 20 LF OF CRACKED JOINTS IN THIS LUMP SUM BID.

REPLACE CRACKED MASONRY UNITS. REFERENCE DETAIL 80.3 FOR SIMILAR REQUIREMENTS. FOR BID PURPOSES, CONTRACTOR SHALL INCLUDE REPLACEMENT OF UP TO 15 BLOCK UNITS IN THIS LUMP SUM BID. MATCH EXISTING BLOCK SIZE, SHAPE AND ARCHITECTURAL FEATURES (WAFFLE GRID ON ONE FACE).

NOTES:
1. WORK LOCATION IS LEVEL 1 SOUTHEAST CORNER NEAR THE ELEVATOR LOBBY, INTERIOR WALL FACE.
2. CONTRACTOR IS RESPONSIBLE TO PAINT NEW BLOCK/MORTAR TO MATCH EXISTING. SEE SECTION 020010 FOR MORE INFORMATION.
3. PERFORM WORK DURING OFF HOURS. COORDINATE WITH WSU.

35.5 MASONRY REPAIRS AT ELEVATOR TOWER
(PS #4) (ALTERNATE)

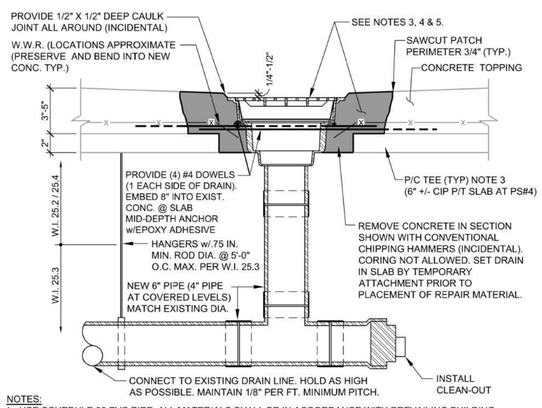




NOTES:
1. USE SERVICE WEIGHT CAST IRON PIPE. ALL MATERIAL SHALL BE IN ACCORDANCE WITH PREVAILING BUILDING ORDINANCES.
2. INSTALL ADJUSTABLE HANGERS AS REQ'D. VERIFY MIN. HEIGHT RESTRICTIONS PRIOR TO INSTALLATION.
3. KEEP PIPE TIGHT TO CEILING AT DRAIN WITH REQ'D. SLOPE TO R.W.C.
4. SET DRAIN ELEVATIONS PRIOR TO PLACING CONCRETE TO ENSURE PROPER DRAINAGE (INCIDENTAL).
5. CONCRETE WORK AND SUPPLEMENTAL REINFORCEMENT REQUIRED ON THIS DETAIL SHALL BE CONSIDERED INCIDENTAL TO WTS 25.2 & 25.3, AND ARE NOT ELIGIBLE FOR PAYMENT UNDER ANY OTHER WORK ITEMS.
6. CONCRETE REMOVALS SHALL BE PERFORMED BY CONVENTIONAL CHIPPING HAMMERS. SAW-CUTTING OR CORING THROUGH THE SLAB IS NOT ALLOWED. DO NOT CUT ANY EXISTING REINFORCEMENT WITHOUT PRIOR WRITTEN APPROVAL FROM ENGINEER.
7. LOCATE SUPPLEMENTAL DRAIN AT LOW POINT OF PONDING WATER.

25.4 MECHANICAL - SUPPLEMENTAL FLOOR DRAINS
(PS #1) (ALTERNATE)

25.3 MECHANICAL - PIPE AND HANGERS
(PS #1) (ALTERNATE)

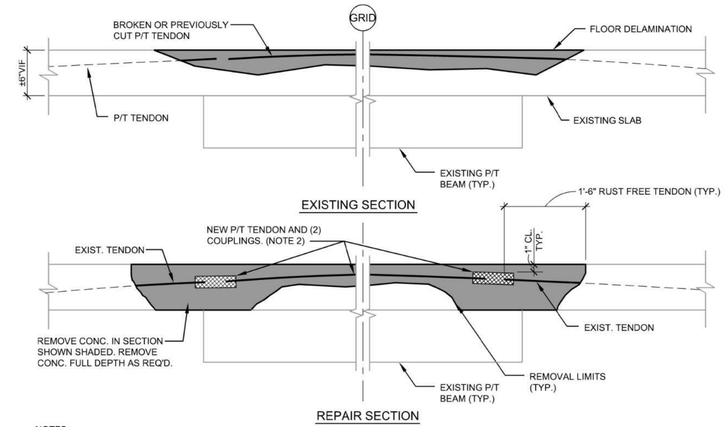


NOTES:
1. USE SCHEDULE 80 PVC PIPE. ALL MATERIALS SHALL BE IN ACCORDANCE WITH PREVAILING BUILDING ORDINANCES.
2. INSTALL ADJUSTABLE HANGERS AS REQUIRED. VERIFY MINIMUM HEIGHT RESTRICTIONS OF PREVAILING BUILDING ORDINANCES PRIOR TO INSTALLATION.
3. FULL DEPTH CONCRETE & SUPPLEMENTAL REINFORCEMENT TO BE PAID UNDER W.I. SERIES 3.0. DO NOT CUT OR DAMAGE ANY EMBEDDED ITEMS. PRECAST FIELD-TOPPED CONDITION SHOWN. SIMILAR REQUIREMENTS APPLY AT PS #4 / PS #6.
4. REPLACEMENT/SUPPLEMENTAL DRAIN (PS #5, PS #6):
   a. SMITH 2140-C-M-B (+2646Y)
   b. WADE 1200-5-27-31
   c. OR ENGINEER APPROVED EQUIVALENT
5. REPLACEMENT/SUPPLEMENTAL DRAIN (PS #4):
   a. 8.5" DRAIN: SMITH 2120-C-M-B (+2646Y)
   b. 14" DRAIN: SMITH 2143-C-M-B
   c. OR ENGINEER-APPROVED EQUIVALENT
   d. BASE BID: 1 DRAIN IS 8.5", 2 DRAINS ARE 14".
   e. ALTERNATE: ALL DRAINS ARE 8.5".
   f. AT CONTRACTOR'S OPTION, 12" DRAIN SPECIFIED AT OTHER STRUCTURES MAY BE USED IN LIEU OF 8.5" DRAINS. 14" DRAIN CANNOT BE DOWNSIZED.
6. W.I. 25.4: LOCATE DRAIN AT LOW POINT OF PONDING WATER BY FLOOD TESTING..

25.2 MECHANICAL - REPLACE FLOOR DRAINS
(PS#4, PS#5, & PS#6)

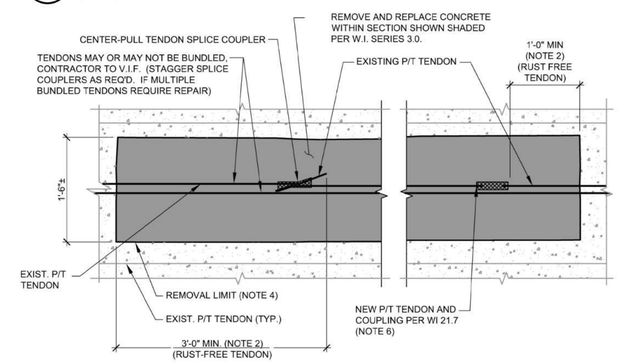
25.3 MECHANICAL - PIPE & HANGERS
(PS#4, PS#5, & PS#6)

25.4 MECHANICAL - SUPPLEMENTAL FLOOR DRAIN
(PS #4)



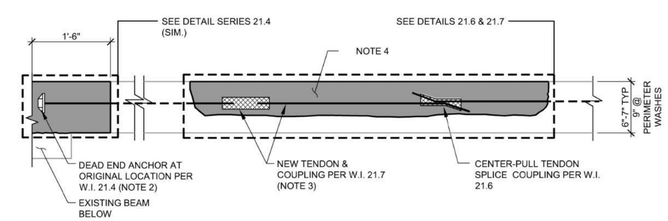
NOTES:
1. IF TWO OR MORE FAILED BUNDLED TENDONS ARE ENCOUNTERED, STAGGER THE COUPLERS AS REQ'D. FOR STRESSING OPERATIONS. STRESS TENDON(S) PER W.I. 21.3 OR 21.6 AS DIRECTED BY ENGINEER.
2. PROVIDE UP TO 10'-0" OF NEW TENDON INCIDENTAL TO THIS W.I. NEW TENDON LENGTH BEYOND 10'-0" SHALL BE PAID FOR UNDER W.I. 21.9. CONCRETE REPAIR WORK SHALL BE PERFORMED AND PAID FOR UNDER WORK ITEM SERIES 3.0.

21.8 TENDON SPLICE COUPLING (DOUBLE)
(PS #4)



NOTES: PARTIAL FLOOR PLAN
1. SEE DETAILS 21.4, 21.4.1, 21.6.1 & 21.7.1 FOR ADDITIONAL INFORMATION.
2. INCREASE CONCRETE REMOVAL LENGTH AS REQ'D BY STRESSING AND INSTALLATION METHODS.
3. CONCRETE REPAIRS SHALL BE PERFORMED AND PAID FOR UNDER WORK ITEM SERIES 3.0.
4. STAGGER SPLICE COUPLERS IF MORE THAN (1) TENDON PER RUN REQUIRES REPAIR. MAY NEED TO ALTERNATE CENTER-PULL COUPLERS ON OPPOSITE SIDES OF GRID LINE.
5. LOCATE SPLICE COUPLINGS ALONG EXIST. TENDON PROFILE AT SLAB MID-DEPTH (APPROX. 6'-0" FROM GRID LINE)(VIF).
6. NEW TENDON LENGTH BEYOND 10'-0" SHALL BE PAID FOR UNDER W.I. 21.9.

21.6 21.7 TENDON SPLICE COUPLING (CENTER-PULL) TENDON SPLICE COUPLING (SINGLE)
(PS #4) (BASE BID & ALTERNATE)



NOTES:
1. THE COMBINATION OF TENDON REPAIRS SHOWN ABOVE TYPICALLY OCCUR WHEN TENDON FAILURE OCCURS AT THE END ANCHOR ONLY OR WHEN TENDON FAILURE OCCURS AT THE END ANCHOR AND AT ANOTHER LOCATION ALONG THE SAME TENDON.
2. PULL TENDON BACK IN ORDER TO POSITION NEW END ANCHOR IN ORIGINAL LOCATION. STRESSING OCCURS AT CENTER-PULL COUPLING PER W.I. 21.6.
3. NEW TENDON LENGTH BEYOND 10'-0" SHALL BE PAID FOR UNDER W.I. 21.9 AS APPROPRIATE.
4. REMOVE & REPLACE CONCRETE WITHIN SECTIONS SHOWN SHADED (PERFORMED & PAID FOR UNDER W.I. SERIES 3.0.

21.4.3 21.6.2 21.7.1 P/T TENDON END ANCHORAGE (DEAD) TENDON SPLICE COUPLING (CENTER-PULL) TENDON SPLICE COUPLING (SINGLE)
(FOR REFERENCE ONLY) (PS #4)

WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1017 Ph
www.walkerconsultants.com

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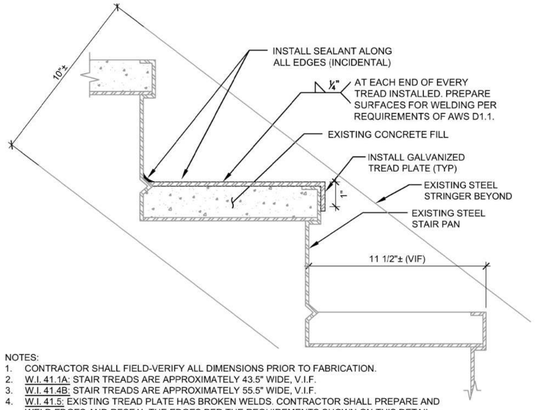


NOTES:
1. CONTRACTOR SHALL FIELD-VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
2. W.I. 41.1A: STAIR TREADS ARE APPROXIMATELY 43.5" WIDE, V.I.F.
3. W.I. 41.4B: STAIR TREADS ARE APPROXIMATELY 55.5" WIDE, V.I.F.
4. W.I. 41.5: EXISTING TREAD PLATE HAS BROKEN WELDS. CONTRACTOR SHALL PREPARE AND WELD EDGES AND RESEAL THE EDGES PER THE REQUIREMENTS SHOWN ON THIS DETAIL.
5. REFER TO SECTION "WORK ITEMS" FOR FURTHER REQUIREMENTS.

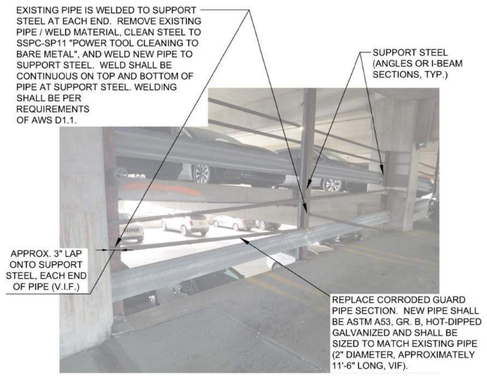
41.4A INSTALL STAIR TREAD PLATES - WEST AND NORTHEAST TOWERS
(PS #4)

41.4B INSTALL STAIR TREAD PLATES - SOUTHWEST TOWER
(PS #4)

41.5 RE-WELD / RESEAL EXISTING STAIR TREAD PLATES
(PS #4)

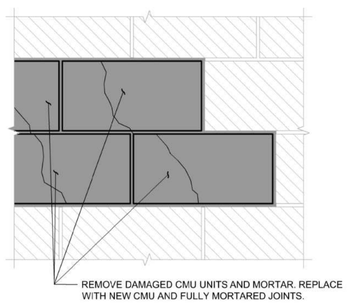
NOTES:
1. LOCATION SHOWN IS NORTHEAST STAIR TOWER, LEVEL 8. OTHER REPLACEMENT LOCATION (LEVEL 7) IS SAME CONDITION. REFERENCE SPECIFICATION SECTION 020010 "WORK ITEMS" FOR WORK REQUIREMENTS.

41.2 STAIRS - REPLACE METAL PAN LANDING / CONCRETE
(PS #4)



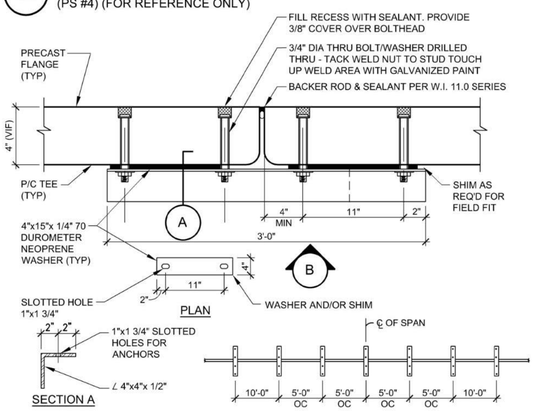
NOTES:
1. PAY UNIT IS "EA." GUARD PIPE SECTION SPANNING FROM COLUMN TO CENTER SUPPORT STEEL (APPROX. 11'-6" LONG).

40.6 REPLACE CORRODED GUARD PIPE
(PS #4)



NOTES:
1. PAY UNIT INCLUDES PROVIDING CORNER UNITS, BOND BEAM UNITS, ETC. AS REQUIRED TO REPAIR ALL DAMAGED CMU.
2. INCIDENTAL TO THIS WORK IS PROVIDING NEW TRUSS OR LADDER TYPE REINFORCEMENT TO MATCH EXISTING. LAP MINIMUM ONE BLOCK LENGTH.
3. CONTRACTOR SHALL SUPPORT REMAINING AREAS OF CMU DURING REPAIRS.
4. PAINT NEW UNITS TO MATCH COLOR OF EXISTING ADJACENT UNITS (INCIDENTAL).

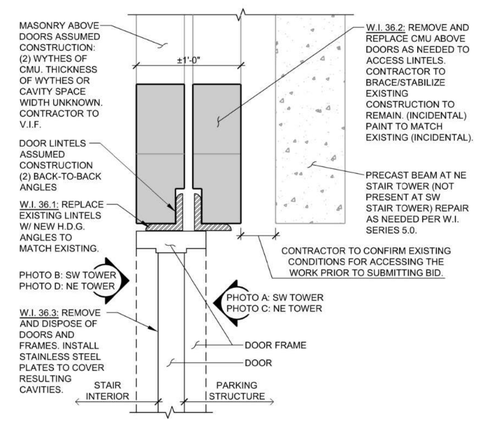
80.3 REPLACE CONCRETE MASONRY UNITS
(PS #4) (FOR REFERENCE ONLY)



NOTES:
1. ANGLES SHALL BE ACCURATELY ALIGNED PERPENDICULAR TO JOINT.
2. ANGLES, SHIMS, BOLTS AND HARDWARE SHALL BE HOT-DIPPED GALVANIZED.
3. INSTALL SHEAR CONNECTORS AS SHOWN IN VIEW "B" (7 NEW CONNECTORS AT EACH AFFECTED JOINT).
4. LOCATE NEW SHEAR CONNECTORS TO AVOID EXISTING EMBEDDED SHEAR CONNECTORS AND REINFORCEMENT WHEN DRILLING THRU BOLTS. NO EXTRAS ALLOWED TO RELOCATE THRU BOLTS.
5. PAYMENT FOR THIS WORK ITEM IS FOR EACH AFFECTED JOINT (7 NEW CONNECTORS AT 1 JOINT = 1 QUANTITY)

50.1 SUPPLEMENTAL SHEAR CONNECTORS
(PS #6)

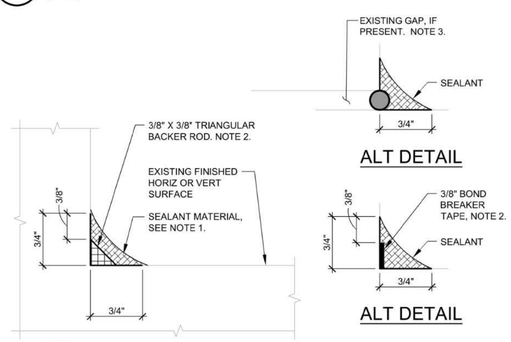
PHOTO C — PHOTO D — PHOTO B — PHOTO A



36.1 STAIR TOWERS - REPLACE LINTELS
(PS #5)

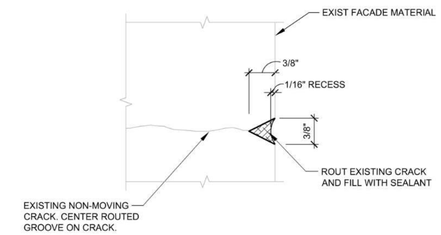
36.2 STAIR TOWERS - REPLACE CMU UNITS
(PS #5)

36.3 STAIR TOWERS - REMOVE DOOR/FRAME & RE-FINISH OPENING
(PS #5)



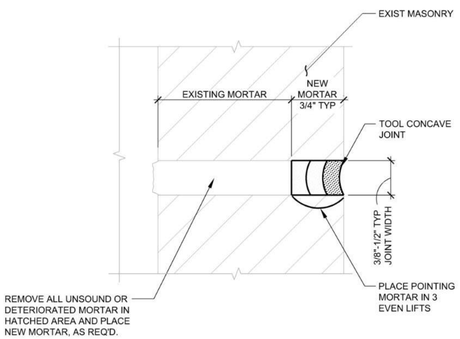
NOTES:
1. REMOVE EXISTING SEALANT MATERIAL IF PRESENT (INCIDENTAL). PREPARE SURFACE PER SPECIFICATIONS.
2. TRIANGULAR BACKER ROD OR BOND BREAKER REQUIRED AT INTERSECTION OF NON-MONOLITHIC MATERIALS.
3. WHERE GAP IS PRESENT, PROVIDE ROUND BACKER ROD OVERSIZED TO FIT OPENING IN LIEU OF TRIANGULAR BACKER ROD (INCIDENTAL).

35.4 MASONRY - SEALANT
(PS #1)



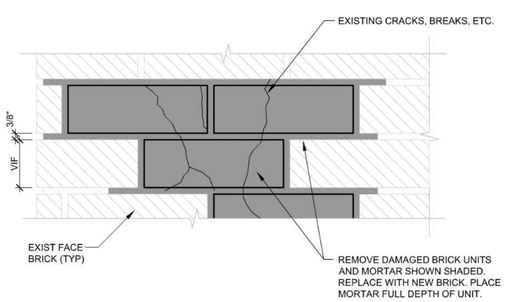
NOTES:
1. PRIME JOINT AS REQUIRED BY SEALANT MANUFACTURER.
2. INSTALL SEALANT EVENLY AND TOOL JOINT CONCAVE. WET TOOLING WILL NOT BE ALLOWED.
3. SUBMIT COLOR SAMPLES TO OWNER FOR APPROVAL PRIOR TO START OF WORK.

35.3 MASONRY - ROUTE / SEAL CRACKS



NOTES:
1. REMOVE LOOSE MORTAR MATERIAL FROM JOINT.
2. FILL ANY VOIDS IN JOINT BEYOND POINTING WORK DEPTH.
3. GRIND BRICK SURFACES CLEAN OF EXISTING MORTAR. DO NOT DAMAGE ADJACENT MASONRY.
4. INSTALL MORTAR IN THREE LIFTS, COMPACTING EACH LIFT.
5. TOOL MORTAR JOINT CONCAVE.

35.1 MASONRY - TUCKPOINTING
(PS #1 & PS #4) (FOR REFERENCE ONLY AT PS #4)



ELEVATION

NOTES:
1. MORTAR JOINT REPLACEMENT AT BRICK MASONRY UNIT REPLACEMENT LOCATIONS IS INCIDENTAL. NO EXTRA PAYMENT UNDER TUCKPOINTING WORK ITEM.
2. DO NOT DAMAGE ADJACENT BRICK BY OVERCUTTING.
3. REPLACEMENT BRICK TO BE APPROVED BY ENGINEER AND/OR OWNER PRIOR TO START OF WORK.
4. REPLACEMENT BRICK SHALL MATCH EXISTING. SUBMIT SAMPLES FOR OWNER APPROVAL.

35.2 REMOVE / REPLACE BRICK
(PS #1)

WALKER CONSULTANTS
525 Avis Drive, Suite 1
Ann Arbor, MI 48108
734.663.1010 Ph
www.walkerconsultants.com

WAYNE STATE UNIVERSITY
2022 PARKING STRUCTURES
#1, #4, #5, & #6 REPAIRS AND MAINTENANCE
DETROIT, MICHIGAN

MARK.	DATE	DESCRIPTION
	03/24/2022	BIDDING AND CONSTRUCTION

REVISIONS

ISSUE: BIDDING AND CONSTRUCTION
ISSUE DATE: 3/24/2022
PROJECT NO: 20-002301.00
DRAWN BY: ECC
CHECKED BY: DJP

SHEET TITLE:
REPAIR DETAILS

R-511

3/24/2022 2:51:24 PM J:\20-002301-00-WSU_PS_#1_2022_Rprs\Drawings\2022 WSU RENOVATIONS.rvt